

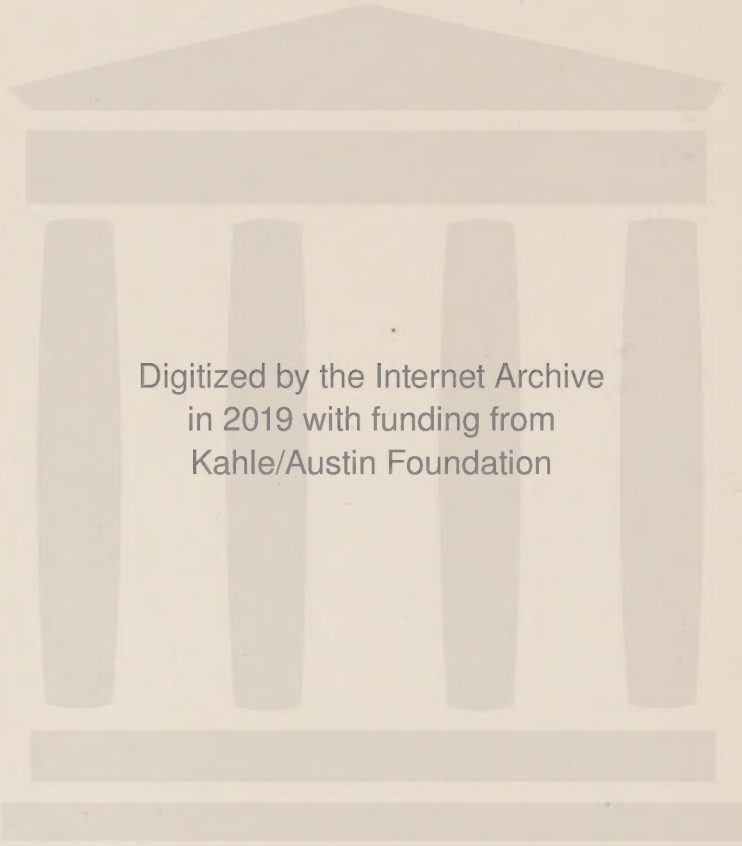
BUSINESS MANAGEMENT

*Training and Service
for Executive Work*

*Directing Man Power
* * Wage Plans and
Production Reports*

LA SALLE EXTENSION
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BUSINESS MANAGEMENT

Executive Manuals 39 and 40

DIRECTING MAN POWER —Being Executive Manual 39, on Principles of Production, in a Complete Plan of Training and Service for Executive Work

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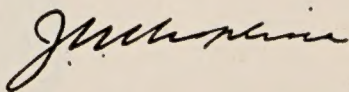
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DIRECTING MAN POWER

Part I

MANAGEMENT AND THE MEN

IN SECURING the desired volume and quantity of output at low cost, executives in every business face a twofold division of responsibilities. One set of responsibilities covers materials, machines, tools, methods, and all other mechanical elements of production, which formed the principal subject matter in preceding manuals.

The other set of responsibilities is related to the problem of directing the man power of an organization. This latter problem is so important in all departments of every kind of business that an entire major section of this training service (Executive Manuals 64 to 71, inclusive) is devoted to a complete and practical survey of the subject of managing men. Here in this manual, certain vital aspects of this problem that are directly related to production in a manufacturing plant will be taken up with a view toward developing full appreciation of the great importance of the problem, as well as with a view toward developing ability to handle men successfully.

In all kinds of executive work in every line of business, the fact stands out that—

The prime gauge of executive ability is success in directing, leading, and inspiring men to work loyally, intelligently, and industriously.

How an executive applies this ability in a manufacturing plant, as explained in this manual, requires application of basic principles that apply in all other kinds of business.

An Excursion into a Well-Planned Shop. To get a clear idea of the man-power problem, let us go into a wood-working plant located in a town where there are several

similar establishments. The location is good; the labor supply is adequate.

This plant is a new one, only two years old; its tools and equipment are the best that money could buy.

The plant was designed and started by an industrial engineer, thoroly experienced in this line of business. The layout and routing of the work were as efficient as could be made. An effective cost-accounting system was installed. This system did its work well—too well, in fact, in the estimation of some of the officers of this company, who complained that the cost-accountant's reports showed costs which were "impossibly high."

The planning and scheduling of the work were being done by a capable man, who, however, could not get effective results. Notwithstanding the excellent layout and equipment and the best of planning and scheduling, the orders "dragged" thru this plant. In despair, the officers called in an expert to locate the trouble. What did he find?

Ineffective Results in an Efficient Plant. As this expert entered this factory, he experienced an odor of varnish strong enough to make his eyes smart. The finishing department was on the top floor. But the exhaust fan there was out of order and had been for several weeks. The dust and chip blowers on the cutting and machine floors were sucking all the varnish fumes down thru the whole plant.

The windows were dirty; the walls were dingy. The morning was bright with sunshine—outside the plant. But inside, the men were working in a semigloom. It was hard to see any obstruction on the floor. A few days before, a man had stumbled and torn his hand badly on a rapidly revolving pulley. Ten men had quit that day, saying they did not want to take any chances of like injuries.

All the safety devices called for by law had been pro-

vided, but the foremen were easy-going. Some of the men found some of the safety devices in the way and the foremen permitted them to be removed. The man who hurt his hand had himself taken the belt guard off the pulley.

In the machine room the expert found a man in charge who did not really know his business. None of the machinists respected him. He had no real control over their work. The better workmen could "put over" almost any excuse they pleased, and the poorer men were not inclined to listen to his suggestions and often disregarded his instructions.

In the assembly room the foreman was well qualified to get good results from his men—but he was ambitious to become superintendent of the plant. He knew things were not going right in his department, but thought his road to promotion lay in holding everyone else back.

There had been several good workmen in the assembly room, men who had made suggestions which saved the firm money. But their foreman had taken all the credit for these suggestions, and most of these men had quit. Those who stayed were "doing their work and that's all," for they found no pleasure in suggesting an improvement only to see another man take all the credit for it.

In charge of the finishing department was a man who could, without change of make-up, take the part of the slave driver in *Uncle Tom's Cabin*. His whip was his biting tongue. He was proud of his profanity. All men with any spirit refused to work in his department. His turnover of labor was several hundred per cent annually.

Thruout this entire plant the labor turnover was very high. Yet all the men were paid the prevailing rate of wages, and many of them a little more. The hours of work were the same as in competing plants, but this shop had to do a lot of overtime work in trying to keep up with schedule.

With those conditions in mind, let us recall the seven

M's — Management, Methods, Machines, Material, Money, Markets, and Men. In this plant, management had given careful attention to six of those seven M's, and little intelligent attention to the seventh M, failing to realize that—

The best planned and equipped plant cannot function efficiently without efficient man power.

The Cost of Inefficient Control of Men. Under conditions as described, it is not surprising that the plant got far behind in filling orders. Many orders were canceled because of delay in deliveries. The sales department had nothing on which it could depend. The goods were priced right, but there was no assurance that delivery promises would be kept.

The president of this company advocated higher prices because the manufacturing costs were so high. But costs were high as a result of inefficient control of the men at work. They took longer than necessary to do a job. They quit without notice and their machines stood idle while new men were being found to run them. The idle-time expense was far too great. The cost of hiring and training new men bulked large.

This company had acquired a poor reputation locally. Its new plant and ample capital had given it a fine standing at the start, but this was lost. The local banks heard whispers of dissatisfaction, and then loans were more reluctantly made to this business, on less favorable terms. It cost more to finance the business.

Most serious, however, was the effect felt in securing labor. It became more and more difficult to find men who were competent and who were willing to work for this company at the going rates. This company's workmen in general were not proud of the fact that they were working for this company. The difficulty in securing an adequate labor supply was becoming more and more acute, because the other factories in this line were in-

creasing their output. Competition for the local supply of labor was growing stronger.

The Importance of Esprit de Corps. All the foregoing difficulties were traced, by the expert called in by this company, to the lack of intelligent control of man power, evidenced by the utter lack of *esprit de corps* among the men.

The men found little pleasure or pride in their work. The management did not understand group psychology, as explained in Executive Manual 14. The better workmen left to take jobs in the other factories. Only the less desirable men remained. Labor conditions had reached the point where resentment against the management might any time, thru mob spirit, express itself in a strike over some trivial matter.

Had *esprit de corps* (a fine group spirit) been developed in this plant, all the departments would have worked for one purpose—the success of the business as a whole. The foremen and the men would have co-operated with the planning department. The men would have recognized their joint responsibility for the success of the business. They would have increased their output and would have suggested improvements. Each workman would have been willing to do his best and to help his fellow workers to do their best.

At the end of this manual, after studying the principles of managing men in the shop, we shall take up this case again and see just how the expert handled the bad situation in this plant—how *esprit de corps* was finally developed among the men.

The Leadership Essential in Control of Men. The responsibility for *esprit de corps* rests on the higher executives in an industrial organization. The president is perhaps more responsible than anyone else, but he shares this responsibility with every executive all the way down to the foremen and the gang bosses.

In managing men, a fact always to be kept in mind is that—

The most effective control of men is based on an inspiring leadership.

Sometimes an inspiring leadership is something foreign to the nature of the president of the company. It originates in some other executive. The president of a new automobile company was asked by his works manager to come into the shop to see the first completed car of the company's new line. As they entered the shop during the noon lunch period, the president saw fifteen or twenty workmen standing around and admiring the finished car.

"What are all those men doing loafing around there? They act as tho they owned that car," said the president.

"Don't they?" answered the works manager. "That's just the way you want them to feel. That car is their car. They take a lot of pride in it."

The president saw the point and congratulated his works manager on his ability to inspire the men with pride in the company's product.

This company has to-day a well-founded reputation for conscientious workmanship—a reputation that results directly from the pride of its workmen in their product, inspired by a works manager who knows how to develop the right kind of leadership of men among his foremen. He applies the principle that—

Pride in the excellence of the finished product is a basic source of inspiration to good work and esprit de corps on the part of workmen.

The Power of Example. In Executive Manual 14, where the psychological principles that apply in dealing with men as a group were explained, we saw how strong is the power of example.

Executives in every branch of a business must realize how powerful is their example in creating enthusiasm for the excellence of a product on the part of the workmen in a plant.

A sales manager who scoffs at some feature of the design of a product, or an advertising man who openly criticizes the product, or a treasurer or any other executive who says anything that may dampen the fine enthusiasm which every worker should have for his product and his organization, is thereby lowering the efficiency of the workmen.

The chief executives in many companies feel this so keenly that, where they cannot personally reach all their large number of employes, they send them messages, thru house organs or in other ways, which reflect their pride in the product and in the organization, and thus inspire similar pride in the workmen.

The president of a large railroad issues signed advertisements, which appear in daily papers that are read by his employes. In these advertisements he expresses his pride in his road and in the men who are responsible for its success. The president of a large shoe company has for years written open letters to his men. Many presidents and general managers in smaller organizations call their men together from time to time and explain their reasons for pride in the work they are doing.

The power of example is one of the strongest factors employed in efficiently directing the man power of any business or department.

The Keynote of Modern Leadership. Autocratic czarism has no place in modern leadership. The day when class distinctions were emphasized by the employer is past.

Co-operation of management and men in a common undertaking is the keynote of modern industrial leadership.

The newest stores-room clerk and the youngest office boy are made to feel, as soon as possible, that the company is "our company." This end is gained when the worker comes to feel that "our company" has a real interest in the welfare of every employe. Modern leadership understands the psychological fact that—

“Like begets like”—a company’s interest in the welfare of the employe is the basic means of gaining the employe’s interest in the welfare of the company.

Scientific management considers men as partners with management in the work of production, and shows this attitude in its plans and in the methods by which these plans are carried out, as by providing for the physical safety of employes while at work.

In certain occupations men have, in the past, been subjected to the risk of certain occupational diseases. Paint mixers, for example, were likely to be troubled with lead poisoning. Scientific management provides preventive safeguards against such diseases. If the health of the worker and the profits of the owners come into conflict, the workers are given first consideration.

Maintaining Friendly Contacts between Management and Men. In former times, when shops were small, an employer usually worked with his men. He knew about the illness of John’s wife and the trouble that Frank was having when welding the iron that came in last week. To-day, so far as the president of a company is concerned, there is danger that John and Frank may become mere clock numbers.

By what methods can the management of a large modern industry control its relations with its men and their work as intimately and effectively as can the “boss” of the small shop?

For a time this responsibility was assigned solely to a “manager of personnel.” It is now recognized, however, that every executive has certain personnel responsibilities which he must be trained to handle. This is particularly true of foremen with whom the men are in contact all day long.

The foreman is now “boss” in much the way that the owner used to be. The foreman as “boss” can and should know all about the individual worker’s personal trials and his triumphs. He represents the higher executives in their

desire to establish that company spirit of co-operation which means so much in promoting the efficiency and contentment of every man in his work.

Modern training for foremanship will be taken up in Part II of this manual, and will be considered more fully in the major section on managing men.

Altho foremen are to-day largely responsible for maintaining those intimate contacts with workmen which represent management's interest in the welfare of the men, there are certain important phases of control of the men in their relations to the company which are put under the charge of a manager of personnel. These phases will be taken up in some detail in Parts II and III of this manual.

DIRECTING MAN POWER

Part II

EMPLOYING AND TRAINING WORKERS

DAY-BY-DAY direction of man power is very largely the responsibility of the "line officers"—the shop superintendent, the department head, the foreman, and the gang boss. Their duties are varied and they are usually too busy otherwise to have adequate time to find new workmen, to interview a large number of applicants for work, and to select and train the best of those applicants.

It is also, as a rule, undesirable to leave to the discretion of the foreman such matters as the selection of safety devices, provision of healthful work conditions, and the many services which make employment attractive to high-grade workers.

Those responsibilities, in a large organization, are usually centered in the hands of one executive who specializes in taking care of them. He is generally called a personnel manager.

The Work of a Personnel Manager. The position of personnel manager is shown in the organization chart illustrated as Figure 3 of Executive Manual 34. The personnel manager comes into direct contact with every member of the shop force thru the employment department, the employe service, and other work under his charge. He reports to the works manager.

In a small organization the owner himself may, and often does, directly assume the responsibilities of employing and training and providing for the welfare of his men. In a larger shop the superintendent usually assumes these personnel responsibilities, unless there is an employment manager who supervises all the personnel work.

In the largest organizations this work is, as a rule, definitely functionalized. In some cases a high official gives all his time to personnel problems, as in the International Harvester Company where the employe-relations work is headed by one of the vice presidents.

“Employe relations” is a term that now covers all contacts between the management and employes. These contacts, in many organizations, are supervised by personnel management.

Whether an organization consists of two or three workmen or of ten thousand, there are certain basic principles that apply in establishing profitable employe relations. We shall study these principles to best advantage as they are applied in the larger corporations.

Altho the basic principles apply in both large and small organizations, there are certain phases and procedures of personnel work which are practical only in the larger organizations. The manager of a small office force, for example, need not concern himself with providing lunch-room service, especially if good meals can be inexpensively obtained near the office. The provision of healthy food for the workers, however, is a matter of paramount importance in every case. Thus, altho we shall analyze personnel work as applied in a large organization, all the basic ideas brought out will be applicable, in principle, to the small organization.

THE ORGANIZATION OF PERSONNEL WORK

During the last ten years, personnel work has undergone a marked development in the larger industries. During the War and for several years thereafter, the direction of this work was usually placed in the hands of a responsible company official who was variously called the personnel director, superintendent, or manager, or the superintendent or manager of industrial relations. In some companies, the employment manager has assumed many personnel duties in addition to those that are directly a part of employment work. More recently, cer-

tain of the personnel responsibilities are being given to the line executives.

The Aim of Personnel Management. Wherever personnel responsibilities are placed in an organization, modern industrial conditions call for a program of sound industrial relations. To have such a program is as important to-day as to have a sound financial or merchandising policy, for—

No business can afford to have any but the best available personnel for its particular requirements in its organization—which is the aim of personnel management.

This means careful selection of men. It means the development of good men into better men. It means keeping good men and making their surroundings such as to permit and encourage them to do their best.

Much depends upon the way in which each man's next superior shows him the purpose of his work and the opportunities in it, and interprets to him the spirit of the organization. Each executive has a definite place in the personnel program. Each must know the aims, motives, ideals, and methods of personnel work in order to cooperate intelligently and effectively in carrying out the personnel program.

Threefold Division of Personnel Activities. Where personnel work is centrally organized, the activities of the department are usually grouped under three headings, as follows:

1. Employment.
2. Training.
3. Employee service.

The essential activities related to employment and training will be explained in this part of this manual. Employee-service activities, which include such matters as providing for the safety and health of employees, athletic and social activities, pensions and insurance, legal advice, etc., will be explained in Part III of this executive manual.

EMPLOYMENT ACTIVITIES

In attaining low-cost production, much depends on getting the right men for each job. The right men will work skillfully and loyally for the common good. But one or two wrong men for the job may cripple the morale of an entire department. To attract and hold the right men and to detect and refuse to hire the wrong men is the problem—to be solved without the aid of such exact tests as the engineer can use in grading his materials and trying out his machines.

The character of the personnel of an organization depends largely upon the character of the applicants whom the employment department selects as worthy and qualified candidates for the jobs that are open.

Even in a small plant, the employment manager's job is difficult, because of the wide range of human material which applies for work. But this wide range gives him the opportunity to find workers that best fit the job.

Some jobs require the plodding individual who is largely brawn and who appreciates a firm hand and has no liking for responsibility. Other jobs, such as fine tool-making, require the high-strung, almost temperamental, deftness of an artist—a nature that is quick to take offense, but is also quick to respond to the right appeals. Still other jobs are best filled by men who are neither high-strung nor low-strung in temperament. Many jobs are best filled by women. Each job, however, may require some special native aptitude or acquired skill.

There are bad and good and best operatives in each of the classes of jobs. In proportion as an employment manager rejects the bad and selects good men, with a fair sprinkling of the best, will he contribute to the success of his company.

Mistakes Are Expensive. In employing shop men, mistakes are expensive. Work in the modern shop is closely scheduled. If one man falls down on his job, or is unexpectedly absent, an expensive delay is likely to be the

result. Idle-machine time piles up its expenses. Broken promises to customers make selling more difficult, thus increasing sales expense.

Each skilled worker employed and trained and fitted into the organization represents a sizable investment. The cost of employing and training a workman runs from \$50 up, and there are additional indirect expenses from spoilage of work while he is learning and delays while he is becoming accustomed to his new surroundings. The total cost of hiring and training a new employe is, on the average, much higher in the shop than in the office, and the responsibility of shop employment work is accordingly greater.

Planning Ahead for Adequate Labor. At some times and in some communities there are supplies of good men which can be drawn upon as the need for them arises. This condition, however, is unusual. In most cases it is necessary to plan ahead for an adequate labor supply in the same way that executives look ahead to insure an adequate supply of materials.

The employment manager must be well acquainted with the needs of each shop department, and he should be included in conferences on production programs, for not infrequently the available labor supply is a decisive factor in adopting a production program.

As soon as the production program for the plant is determined, the employment department usually begins the work of finding the best workers available in building up the labor force to the required size and character. The department will, in so far as possible, anticipate the requisitions for additional employes which come in from various department heads as soon as they foresee the exact labor needs of the new schedule.

A copy of a typical requisition for an employe is shown as Figure 1. This form gives the information which the employment department should have, in addition to

REQUISITION FOR EMPLOYEE	
To Employment Department	Date _____ 19 ____ No. _____
Please Secure for Department	One _____
To Work as _____	Rate _____
Kind of Work	
To Begin Work (Date) _____	Temporary _____ Permanent _____
Estimated Time	
Experience Necessary _____	
Other Qualifications Desirable _____	
To Replace _____	
Reason for Increase _____	
Remarks _____	
Approved by Sup't _____	Foreman _____
To be made in Duplicate; Original to Employment Dept., Duplicate kept in this book.	
Date Received by Employment Dept. _____	When Filled _____
Whom Hired _____	

Figure 1. The foreman of the department which needs a new man fills out this requisition, has it approved by the superintendent, and sends it to the employment department, keeping a duplicate copy in the book.

exact knowledge of the job to be filled that is already on record in the employment department.

Note that one item reads, "To begin work." The foreman should send in the requisition as far ahead as possible of the date he sets here, in order to give the employment department time to pick the best man available for the job.

The Sources of Labor Supply. An employment man must be acquainted with the sources of labor that best meet his needs. He will watch the labor market closely and will keep in touch with other employment men as well as employment sources; he will encourage present employes to recommend suitable people.

Often the various employment offices in a town or community will co-operate. Each office will send applicants whom it cannot use to a company which it knows to be in need of just such men.

Want ads, public schools, employment agencies, and

labor bureaus are all used as sources of supply. The state and Federal labor employment bureaus are good sources, particularly in securing a supply of "floating labor" for some temporary need.

Knowing the sources of supply, the next step is to draw the best men from these sources. The effectiveness of the printed advertising used is important, but the word-of-mouth advertising which travels from man to man throughout a community is more important.

The reputation for being square with the men, for good treatment of the men by the foremen, and for agreeable working conditions, and the enthusiasm and loyalty of the present employes are important factors in attracting good men to a shop.

Knowing the Jobs and the Men. To employ men intelligently for a certain job, it is necessary to know—

1. The requirements of the job.
2. The qualifications of the applicant.

Our study of job analysis in Executive Manual 35 indicated one means of knowing job requirements. An effective employment man, however, needs much more than a book knowledge of the job.

A fairly large plant had been having serious trouble with labor turnover. A large percentage of the new men employed proved to be unfit for their work and soon left or were discharged. The works manager decided to remedy this by developing an employment department that would be competent to pick men and women fitted for their work.

His first move was to have one of his intelligent young workmen go thru the shop to make analyses of all the men's jobs. Next this young man discussed with the foremen the qualifications of the man to fill each job and set down on cards the practical specifications for filling the various jobs. He was then ready to talk with every applicant for a skilled worker's job, with a real understanding of the kind of man needed to do it.

Thru study and experience he fitted himself for this work and was eventually intrusted with the employment of all male workers.

This shop also employed many women workers. An intelligent young woman developed, in the same way, specifications for filling the jobs handled by women. She qualified by experience and study as employment manager of women.

Whenever more common labor was needed in this plant, the head of the foundry labor gang was called in to help select the men. He was a big-hearted, two-fisted fellow, who not only knew the requirements of every common-labor job in the shop but also had demonstrated his ability to pick good men for common labor.

Thus this company successfully solved its labor-turn-over problem by placing employment in capable hands trained for the work by acquiring both the practical and technical knowledge needed by those who select new employees.

An interviewer of applicants for jobs must know the requirements of the various jobs and the kinds of people who fit the requirements. He must know the company's policies. He must understand human nature, and have a sincere interest in people.

Interviewing and Selecting Employees. When applicants come in for an interview, they are usually first asked to fill out an application blank, of which one form is shown in Figure 2. Very often, however, the applicant is less embarrassed and the information is more accurately obtained if the interviewer himself fills out the card during the interview.

A properly conducted interview is not a haphazard conversation, but is carefully planned to get the exact information desired. You will find many suggestions on the nature of this interview in Executive Manual 61, where the general subject of office procedure is discussed.

Each applicant is interviewed privately. An effort is

made to make him feel at ease while being interviewed. He is closely questioned regarding his previous experience and his qualifications for the jobs that are open. At the same time, by suggestion as well as by direct statement, the interviewer will "sell" the applicant on the job.

Tactful interviewers often put a nervous applicant at ease by first telling him about a job or jobs to be filled rather than by an immediate bombardment of questions.

Testing and Trying Out the Applicants. Many tests have been devised in attempts to put the selection of men on the same scientific basis as the selection of materials. In general these scientific tests may be said to be valuable as supplementary to the personal interview in certain cases, but in no case are they considered a complete substitute for the expert estimate of a mature judge of men.

Intelligence tests, such as those referred to in Executive Manual 21, are intended to measure the applicant's native intelligence and ability to learn. There are also aptitude tests designed to reveal the aptitude of a man for handling certain work which he is to be taught.

In making tests, mechanical devices may be used to measure the co-ordination of eye and hand, the time and accuracy of certain movements, the ability to use the left hand as well as the right, and many other physical and mental qualities required in successfully handling various jobs.

Usually the most important thing to determine, after favorable judgment has been passed on an applicant's personality, is the skill a man has already acquired for the work he is to do. An interviewer who knows all about this work becomes expert in finding out during an interview just how much the applicant knows about it. If there is some doubt as to a man's ability, he gives the man a trial, usually by the foreman under

DIRECTING MAN POWER

Name of Company			
XYZ, Ill. _____			
Gentlemen:— Mr. _____			
Age _____	Height _____	Weight _____	
has applied to us for work as _____			
and claims to have been in your employ as _____			
Clock No. _____			
We will appreciate your answers to the questions below, and will be pleased to reciprocate whenever our records may be of service to you.			
Very truly yours,			
_____ Employment Dept.			
I hereby authorize you to furnish the information requested.			
Signature of Applicant _____			
Was he employed as stated? _____			
Length of Service? _____		Character? _____	
Reason for Leaving		Skill	Production
Leave of Absence	Own Accord	Excellent	Fast
Sickness	Laid Off	Average	Medium
Injury	Discharged	Poor	Slow
			Regular
			Temperate
			Obedient
Please Check Which			
Gave Leaving Notice? _____		Would You Re-employ? _____	
Comments _____			

Date _____		Signed _____	

Figure 3. An inquiry form suitable for mailing to a former employer whom an applicant gives as a reference. Note that a complete answer can be made without doing much writing.

whom the worker is to serve. The applicant is given a carefully selected series of operations to perform, which test his general fitness for the job.

Some large shops have special departments where such tests are made. The worker is usually paid for the time he puts in on these tests, even if he is not hired.

In most organizations, the applicants who appear satisfactory to the employment manager are sent to the foreman under whom they will work, and he has the final decision as to whether they suit his needs.

One important detail in selecting new employes is the communication with references. Often the telephone may be used satisfactorily. But personal letters requesting certain definite information in writing are mailed to the references in many cases. Often a printed form, such as that shown as Figure 3, is sent to be filled in by those given as references. It shows the information that is generally considered to be essential. Note that this form makes it easy to give the information asked for.

The pay-roll department must be advised as soon as

PAY-ROLL IDENTIFICATION SLIP				
Employment department will enter information, using typewriter. Have employe sign name with pen and ink. When employe cannot write, take finger print.				
SEND TO PAY-ROLL DEPARTMENT IMMEDIATELY.				
Signature		Finger Print		
Address				
Phone	Birthday		Height	Weight
Nationality	U. S. Citizen	Married Single	Hair	Eyes
Occupation	Starts		Rate	
No.	Name		Dept.	

Figure 4. Notification to pay-roll department when new employe is hired.

an applicant has been assigned to a job. Figure 4 shows a form which one large company uses for this purpose.

All information concerning changes of work and of wages is usually sent to the employment office. Figure 5 shows a well-arranged form which serves this purpose.

Records Kept Following Employment. An employment department is often held to be primarily responsible for labor turnover, which measures the average time that men stay with a company. For this and other reasons, the employment manager wants records kept of the men his department has employed. Another reason for this is that workers in his department will more keenly feel their responsibility for the success of the men employed if a record is kept of the success or failure of these men.

In many cases, therefore, employe records are kept in the employment department. A good place to keep these records is on the reverse side of the application cards, as shown in Figure 2, where space is provided for a complete condensed history of an employe's connection with the company.

Should a man leave and later seek re-employment, the value of this record is obvious. It is also valuable in giving accurate information to other employers who ask for information, as well as a source of facts in measuring the efficiency of the work done in the employment department.

Handling Adjustments and Transfers. After a man is hired and is at work on his job, someone must make sure that he is giving satisfaction, and that he himself is satisfied. This is primarily the responsibility of the foreman for whom he works.

Difficulties may arise, however, which can best be adjusted by the employment department. At the outset, there may be a misunderstanding regarding the rate of pay which the employment man promised; or a new man may prove to be of doubtful fitness for the job to

which he has been assigned. Instead of discharging him, the employment department may see that he could profitably be transferred to another department to a job on which he could in all probability make good. Again, a man may be ambitious for some advancement which he thinks (perhaps mistakenly) that his foreman would oppose. Such a problem (and many others) is often best handled by someone other than the department foreman; and that "someone" is usually found in the employment department.

NOTICE OF CHANGE IN OCCUPATION, RATE, OR DEPT.			
Name _____		Date of Last Rerate _____	
Present Rate _____	Per Hour _____	Present Clock No. _____	
New Rate _____	Per Hour _____	New Clock No. _____	
Changed from Dept. No. _____		To Dept. No. _____	
		Effective from _____ 19__	
Kind of Work _____			
Reason _____			
Approved _____		Recommended _____	
Fact. Mgr.		Foreman	
RECORDED			
Employment Dept. Record by _____		Date _____	
Cost Dept. (T. K. Div.) Record by _____		Date _____	
Pay-roll Dept. Record by _____		Date _____	

Figure 5. Notice of change in occupation, rate, or department, to be filed in the pay-roll department after the change has been recorded in the employment department and by the timekeeper.

In some of the larger establishments, a personnel man in each shop works with the employment department in handling all such problems, including also many of the purely personal problems of the workers.

Handling Promotions. Having a uniform policy regarding promotions and increases in pay is an important means of reducing labor turnover, and of retaining the better grade of employes, for—

Assured opportunity for advancement as fast as earned is a strong motivating force, not only to those who are actively ambitious, but also to those who move along more slowly.

Classification of all the work is necessary in applying a promotion policy. Analysis of the qualities and attainments that justify promotion from one class to the next is necessary. Periodic consideration of all employes to determine the class of work for which each is qualified is also a requirement in applying a uniform promotion policy.

How the work of a department is classified was shown in our study of job analysis in Executive Manual 35. Almost all kinds of work, both in the office and in the shop, can be classified on an equitable basis.

As a man qualifies for successively higher classes, he will be promoted and his pay will be advanced accordingly.

In addition to a man's mechanical skill, his steady service, his adaptability, his general training, his self-improvement, and his all-round value to the company are matters to be considered in his promotion.

Usually the rating on which promotion is based is the consensus of opinion of the executives with whom the worker is associated.

The Problem of "Terminations." The rate of labor turnover is the number of employes who leave ("terminations") divided by the annual average number of workers employed. If thirty men leave during the year in a department in which an average of one hundred men are at work thruout the year, the rate of labor turnover is 30 per cent in that department.

As explained in Executive Manual 4, labor turnover is affected by changes in business activity in general. Men change their employment more freely when employers are actively competing for additional men.

Turnover of labor is greater in seasonal industries which normally employ more labor at one time of the year than at another time. It is also greater where many women workers are employed. The turnover of common labor in general is greater than the turnover of skilled labor in general.

Investigations have revealed annual rates of turnover in certain plants running above 500 per cent. That is exceptionally high. But a rate of turnover around 300 per cent is not uncommon. Thru the introduction of improved methods of employment, training, and promoting the men, many concerns have reduced turnover of labor from 200 or 300 per cent to 45 or 50 per cent, with a very large gain in plant efficiency.

Investigations show that for industry as a whole about one-fourth of the "terminations" are discharges and about three-fourths are resignations. It is clear, therefore, that the employment manager who seeks to reduce labor turnover in his plant must give special attention to reducing the number of resignations. His employment records reveal the causes of resignations. Knowing the causes, he can work to remove them.

The "Clearance Interview." Knowing the reason or reasons why good workmen leave is so important to the success of a business, and gives such an accurate picture of the conditions in the plant, that in many progressive business concerns one tactful man—often the head of the employment work, and sometimes even the general manager—interviews every employe who wishes to resign.

An employe who has decided to leave has little cause to hide the real reason for his decision, and tactful questions will, as a rule, get his story. Such "clearance interviews" often result in retaining the employe, if desirable, by transferring him to more congenial work.

In many plants the foremen do not have final authority to "fire" a worker. They can recommend his dis-

charge, but the employment office may find it possible to adjust the difficulties in the department or to transfer the man to another.

An effort is made to place elsewhere all workers who have to be "laid off," for it is the purpose of the employment manager to have those who leave feel as kindly as possible toward the company. That is another important objective of "clearance interviews."

Labor-Turnover Analysis. The entrances into an organization and the terminations may be listed by departments on a sheet such as that shown in Figure 6.

Note that "entrances" of re-employed workers are listed separately. These may include men who had been temporarily laid off—who are usually given the preference over new men of equal qualities, since the cost of making them efficient members of the organization is less than for new men, and their ability and personality are already known.

The "transfers" show the men who leave one department to enter another. Each transfer shows therefore in the "entrances" of one department and the "terminations" of another, and their total is of course not included in figuring labor turnover.

An analysis of the causes of terminations tends to show how well the labor policies are meeting current conditions. If the totals in the column "Better Job Elsewhere" are proportionately larger than in previous months, it is likely that wages or opportunities must be increased here to meet the competition of other firms for good men. A normal shifting of men must be expected, but the causes of variations from the normal rate of shifting should always be determined. Executives, in using statistics, keep in mind the fact that—

In nearly all statistical compilations, the actual detailed figures are not as important as comparisons of

variations for different periods, which reveal trends of change.

Labor statistics are often shown by charts in which different lengths of lines show the percentages of labor turnover in different departments. Variations in the causes of terminations may also be charted. Such charts show, to a considerable extent, the relative efficiency of the personnel and employment work; also the efficiency of the various department foremen.

Excessive labor turnover is usually an indication that something is wrong. When its true cause is known, means can usually be found to reduce it.

The Place of the Employment Manager. It is evident that the management of employment and of employe relations in general is a responsibility of sufficient importance to command the attention of a high official of the company.

In large corporations, and even in some smaller concerns, an employment manager is found who reports directly to the general manager. In many smaller firms this responsibility is placed under the supervision of the superintendent.

There is no uniform method of conducting employment work. Each employment manager strives to handle his responsibilities in the way that best meets conditions in his plant and locality. Methods and principles explained in preceding pages, however, apply, for the most part, in all cases.

The principal employment activities of industry are summarized in the chart on the opposite page. These activities arise largely from the need for keeping down the direct and indirect costs of breaking in new help, particularly help for filling the skilled-labor positions. The employment manager seeks to lower these costs by picking the best man available for each job. In addition he holds himself responsible to a great extent for retaining good men in the organization.

One of the surest ways to keep good men in the organization is to train them for better places. Thus we now face the important problem of training industrial workers.

PROVIDING OPPORTUNITIES FOR TRAINING

The management of an industrial establishment might adopt the policy of employing only well-trained, skillful men and executives. Is it likely that such a policy would prove economical or sound? It is not likely, because such a policy would almost surely prove to be too expensive. It would be necessary to bid high in order to hire good men

THE PRINCIPAL EMPLOYMENT ACTIVITIES ARE—

1. Knowing the personnel requirements of the company from a study of the needs of each department and thru a system of labor planning and requisitions.
2. Locating and keeping in touch with sources of labor supply.
3. Knowing the nature and opportunities of each job, and the kind of men needed to fill it.
4. Interviewing, selecting, and placing new employes.
5. Making ability, trade, and occupational tests.
6. Devising and keeping employment records, systems, and forms.
7. Co-operation with the timekeeping and pay systems.
8. Promoting attendance and decreasing tardiness.
9. Handling transfers, promotions, and terminations.
10. Analyzing and reducing labor turnover.
11. Researches, reports, and statistics on labor questions.

Figure 7. A list of the principal activities in the employment department.

away from positions with which they are satisfied. Furthermore, men hired away from various other concerns where conditions were different might not readily fit in and co-operate with fellow workers. It would take time to weld each new man into the organization.

For those reasons and also because of the great advantage in holding good men that comes when opportunities for promotion are provided, progressive management seeks means by which its employes can be trained for promotion to better jobs in its organization.

Among candidates for an executive position, acquaintance with company policies, practice, and history should weigh heavily in favor of promoting one of the present employes.

Furthermore, all the essential qualifications of a man inside the organization are known more certainly than are the qualities of a man brought in from outside.

In considering men for a position, those inside the organization should have a preference over others, because promotion will produce a more loyal, enthusiastic employe; and a policy of promotion holds good men in the firm.

It is largely because of the advantages gained by promoting men inside the organization to higher places that progressive management gives considerable attention to training activities which fit men for promotion. The more important training activities are analyzed in Figure 8. Let us make sure that we understand these activities.

Modern Apprenticeship Training. A generation ago the apprentice system played a more important part in industry than it does to-day. This system was then the chief source of labor supply, for shops in those days employed proportionately more workers in well-established and organized trades.

The introduction of more labor-saving machinery, the development of larger plants with more specialization on the part of the workers, and the transfer of skill from the worker to the machine have been accompanied by a gradual decline in the apprentice system. It is only in the last few years that we have witnessed a revival of apprenticeship methods to meet modern requirements.

Companies which have a modern apprentice-training

TRAINING ACTIVITIES

1. **Apprentice training for—**
 - (a) Grammar-school graduates.
 - (b) High-school graduates.
 - (c) College graduates.
2. **Training for specific production jobs.**
3. **Foremen training and conferences.**
4. **Co-operation with outside educational activities, including—**
 - (a) Local night, continuation, and extension classes.
 - (b) Educational activities promoted by trade associations.
 - (c) Correspondence-school work and home study.
5. **Employee library service.**

Figure 8. An outline of the more important training activities by which management fits the employe for promotion.

course report that a good majority of the graduate apprentices remain with the firm where they are trained, and that many advance into executive positions. This justifies the training.

In addition to strictly trade training, modern apprenticeship training includes classroom work, usually consisting of English, elementary economics, and civics; also, as a rule, there is some class work relating to the history of the industry. Shop mathematics and drawing are studied where these subjects are a necessary part of training. Thus modern apprenticeship training is designed to meet modern needs fully.

Apprenticeship is usually based on a contract between the apprentice student or his guardian if he is not of age, and the company. This contract specifies that the student will receive training in the basic trade, or trades, and processes of the industry, and it usually includes a schedule of the classroom work.

At the close of the two to four year course, the apprentice is usually given a certificate of graduation and a

place on the working force at the same wage scale as paid to other skilled workers. He is also often given a set of tools or a money bonus, or both, in addition to the modest wages he received as an apprentice.

Large industries may have several distinct groups of trade apprentices. Special courses are often given to high-school graduates and to college graduates.

While such elaborate plans are not practical in the smaller shops, the local school authorities sometimes co-operate with an employer and provide the classroom work, while the employer gives the shop training.

Training for Some Definite Job. Training for a particular job is commonly known as "intensive factory training" or "vestibule school" work.

During the War, as a matter of expediency, training rooms or departments were established in many industries in which men and women were trained in some specific operation by experienced workmen. This short period of intensive training before the new men were put to work on regular production was found to be so useful in many industries that it has been continued as a regular part of the educational and training system of the plant.

In many industrial establishments, every new employe who has not demonstrated his ability by a trade test, or who is to be an operator on a repetitive process, goes from the employment office to the training division where he is given several weeks' intensive training. The production schedule and the turnover averages indicate how many people are to be taken on for such training work and what kind of training they are to receive. Under this plan of training, the learner receives all the expert guidance necessary to learn the job quickly and well. He therefore soon becomes efficient and profitable to the company and to himself.

In addition to the training in specific processes, the

training division may give the new employe an hour's daily drill in the company rules and policies, and he may be told all about the personnel and service activities of the company.

Such intensive training has been found to be very helpful in reducing the large number of "quits" which usually take place among new employes during the first few weeks of employment.

The Training of Foremen. In preceding manuals there were many references to the foremen and their duties. They play a very important part in modern industry. How do they come to have special fitness for their work?

In former years a man was chosen from among the workers to be foreman largely because he could "boss them round." His "leadership" was, in many cases, of the bullying type. But the more successful foremen-executives are real leaders of men rather than drivers.

A good foreman always has been a man with a thorough practical knowledge of the work done in his department and of the tools with which it is done. But it is even more important that he have "a way with men." He must be sympathetic yet very practical in his treatment of them, and must have the knack of getting all hands to pull together.

Men with these qualities well developed are scarce. Modern industry is calling for many more good foremen than it has thus far found. The great importance of good foremanship is recognized. In the everyday affairs of a modern shop, the foreman represents the company to the men; the foreman is the line officer who is responsible for the satisfaction which his men find in their work. The training of men of good natural ability so that they may become high-grade foremen is therefore extremely important.

Having high-grade foremen is the principal means by which management insures a high standard of relations with the men.

A Method of Foremen Training. One of the best methods of training foremen is to hold foremen conferences—usually held every two weeks—with definite topics for discussion worked out in advance. A standard course in foremanship that requires systematic home study is an invaluable means of making the conferences most effective.

The subjects to be discussed should all be practical, and should cover the broader company problems as well as the more specific foremanship problems. Figure 9 gives a series of subjects suitable for foremen conferences.

The conference leader is an important factor in the success of these conferences. He will assign certain questions to different members of the group, and will see that they are prepared to answer and discuss these questions from every angle.

The object of foremen conferences is to make the foremen think constructively about their problems and thus become better prepared to meet them.

Constructive thinking about business problems is greatly stimulated when a group of men all interested in those problems get together for the purpose of thinking about them.

The results of well-conducted foremanship training courses and conferences are—

1. Marked improvement in quantity and quality of output.
2. Close maintenance of production schedules.
3. Reduction in costs.
4. Improvement in the morale of workmen.

Co-operation with Outside Schools. The training plans that have just been discussed are necessarily matters of company policy. Sometimes it is not practical for an organization to go into such work. It is always possible, however, for a company or a group in it, or even for one man, to obtain effective training thru the co-operation of outside schools.

The school superintendents in cities which are indus-

trial centers and, in many states, the state departments of education are glad to co-operate in organizing vocational schools, continuation schools, and night schools. Where classes are not likely to be large enough to justify a school on the company's premises, general classes are often organized for training employes from several different companies.

THINGS FOR FOREMEN TO THINK ABOUT

1. The foreman and his job.
2. Our working force.
3. Foremanship is leadership.
4. Training our new men.
5. Analyzing the jobs.
6. The flow of work.
7. Getting the work out.
8. Is my department a good place in which to work?
9. Caring for materials and supplies.
10. Shop costs.
11. Our shop organization.
12. What is production and why?
13. Our wage plan and others'.
14. Legal requirements.
15. Employee service.

Figure 9. Subjects suitable for consideration in a series of foremen conferences. Some of these subjects can profitably be discussed at more than one meeting.

Even if local schools cannot co-operate, and no matter how small the group of students to be trained, management has at its command an excellent system of training offered by good correspondence and extension schools and universities. By helping the employes to choose their courses, and by encouraging them to take up and continue home study, management can greatly strengthen the personnel of its organization. And when trained men are needed to fill responsible positions, it is unneces-

sary to go outside the organization if the men within it have thus fitted themselves for promotion.

Modern management now recognizes the fact that all educational work should be encouraged, whether directly related to the man's occupation or not. Learning how to study and how to think are of greater value than merely acquiring practical information, necessary and valuable as it is.

In any company where many employes are taking educational courses, there is always a noticeable liveness and efficiency of activity.

The Library As a Means of Training. The officials of the local library and of the state traveling library service are always glad to loan books to a company for its men. In some cases they provide a speaker to talk on the value of good books and reading. In many ways, a business can stimulate reading of the right kind of books on the part of its employees.

There are many ways of bringing educational advantages before the workers. There are many ways of training the men, the foremen, and the other executives for taking care of greater responsibilities. The more important methods of doing this have been covered. The advantage of doing it is plainly evident.

An organization which trains its own men to fill the better positions thereby keeps the doors of opportunity constantly open to its own workers, and its turnover of labor is relatively low. Efficient selection of new employes, as explained in preceding pages, is likewise a basic means of reducing labor turnover.

Other important phases of the general problem of employe relations deal with the retention of good employes by means of other important services to employes which keep them as loyal and contented workers in the organization. These will be explained in Part III.

DIRECTING MAN POWER

Part III

MAINTAINING AN EFFICIENT PERSONNEL

TO HIRE good men, to train them, to retain them, and to maintain their efficiency are the major objectives in directing man power. Employment and training were covered in Part II. We now come to the problem of maintaining an efficient personnel. The term "personnel" means all the individuals in an organization, including the executives.

The man who is responsible for maintaining an efficient personnel recognizes the fact that employes must be kept healthy and happy if they are to do good work. He specializes in directing services which keep all employes fit, both mentally and physically, for good work.

Aims of Employee Service Work. Health and cleanliness of body and mind, happiness, contentment, thrift, intelligent interest in the welfare of the company and of the community, zeal for intelligent co-operation with fellow workers—such are the aims of modern employee service work.

Intelligently and systematically planned and carried out, employee service work is very profitable to the company as well as to the employes. It establishes that intimate relation between employer and employes which is so vital in applying the principle of co-operation thruout an organization, and which results in a greater quality and quantity of output and in less waste of time and materials. These gains far outweigh the expense of the effective personnel service.

Naturally, there have been some failures in rendering personnel service, due mainly to suspicion and ingratitude on the part of the workers. This has happened in

a few cases even tho the personnel and welfare work was intelligently and unselfishly undertaken. But an occasional failure of employe service work does not nullify the fact that—

To obtain and retain competent employes, it is necessary to provide good working conditions. Intelligent workers naturally seek a wholesome and congenial environment in which to work.

The Extent of Personnel Work. Personnel work is so human that the conditions in no two industrial establishments are the same, even tho the two establishments are the same kind. A manufacturer who merely copies the employe service of another makes as great a mistake as if he were to copy blindly the planning system of a neighboring manufacturer. He can get useful suggestions from the work done by others, but will have to rely upon his own initiative to develop personnel methods which are suitable for his particular conditions.

The personnel problems of one plant may center-round the fact that its growth is slow, giving its men relatively little opportunity for promotion; while in a neighboring plant this problem may be complicated by very rapid growth which compels it to hire many men who are not congenial to "the old crowd."

In our study of personnel work, therefore, it is best to sketch the more important phases and to analyze the purpose and effect of each, and thus lay the foundation for making an intelligent choice of the activities which are likely to prove most helpful in solving a particular personnel problem.

One important principle must be observed, both in choosing personnel activities and in carrying them out. In order to carry these activities as far as they should go and yet not let a charge of paternalism be brought against the employer, it is necessary that—

The workmen themselves should as far as possible organize and control the employe service and recrea-

tional activities—the employer furnishing only the inspiration, suggestions, and necessary supervision.

Various employe service activities that are found most helpful in industrial service work are outlined in Figure 10. Most of these will be briefly explained in the following pages. Others will be covered at some length in Executive Manual 65, where the organization of personnel work in general is considered.

You will remember that the section of this course of training which dealt with psychology was full of suggestions regarding personnel work. Those who are especially interested in it will find the LaSalle course in Personnel Management a complete training in employe service work as well as employment management and personnel. Employe service for the office force you will find to be fully explained in later manuals of this course.

Safety and Compensation Work. One of the significant industrial developments of recent years is the method by which the cost of injuries to workmen is being added to the manufacturing costs.

Not many years ago, an employe was told to look out for his own safety. Should he be hurt and made temporarily or permanently idle, not only the loss of time but the expense of recovery fell on the workman. The only exception was when the employer directly contributed to the injury.

That method of dealing with injuries was, in many cases, unjust. Work of certain kinds has greater hazards than other work, and it is rare that each individual worker is sufficiently paid for taking extra hazards to enable him, individually, to lay by a reserve for possible injury. Even if wages for extra hazardous work were high enough to enable the workers to lay by such a reserve, those who escape injury would have an unfair advantage over those who were injured.

This problem is solved by having the employer pay all,

or at least part, of the cost of injuries. In doing this, the employer takes out insurance, known as compensation insurance. Thereby his expense for compensation to injured workmen is based on the average of such expenses paid by firms of the same general nature. His insurance premiums are figured as part of the indirect manufacturing expenses, and they enter into the price he receives for his product. Thus, in reality, those who buy his goods pay the cost of injuries to his workmen.

EMPLOYEE SERVICE WORK INCLUDES—

- A. Activities aimed to develop and conserve physical safety and efficiency by means of—**
 - 1. Safety equipment and compensation for injuries; accident prevention and fire prevention.
 - 2. Medical and dental work for employees and their families.
 - 3. Plant and visiting nurses for employees and their families.
 - 4. Lunch rooms which provide good food at reasonable prices.
 - 5. Athletics and other recreational activities.
- B. Activities aimed to develop the morale of the workers, accomplished by—**
 - 1. Social activities for employees and their families.
 - 2. A shop paper to disseminate interesting shop news.
 - 3. Encouragement of suggestions from employees.
 - 4. A pension system for old age.
 - 5. Group insurance for all ages.
 - 6. Benefit and loan associations.
 - 7. Legal advice to the men and their families.
 - 8. A company store where prices are relatively low.
 - 9. Patriotic or charitable campaigns.

No attempt is made to list the above items in the order of their importance. All these activities tend to build up morale.

Figure 10. A list of the more important service activities of the modern personnel department in a large plant.

Compensation Insurance and Safety Work. One of the effects of the use of compensation insurance has been to reduce greatly the number of accidents in factories.

It is true that many of the more enlightened employers had for years sought to reduce the chance of accident in their plants by installing every safety plan they could devise, but they met with little encouragement even from their own men. Many workmen seem to delight in taking chances.

When the problem was recognized as a national prob-

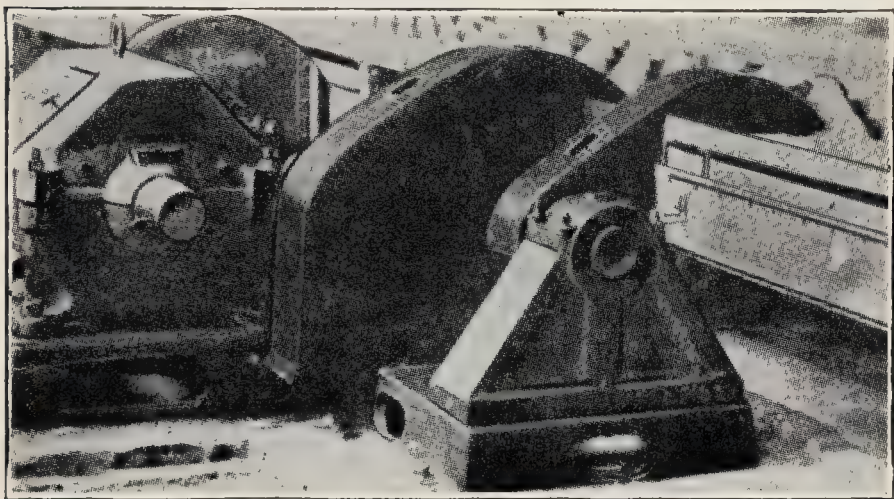


Figure 11. A motor with gears completely covered driving a transfer table in the U. S. Steel Corporation.

lem, however; when laws were passed putting the responsibility for accident on the employer; when insurance premiums were markedly increased if approved safety devices were not used, a united attack was then made to eliminate the causes of accidents and of industrial diseases, and with highly satisfactory results.

The Safety Committee. The personnel department plays a big part in this work. It is usually made responsible for organizing and inspiring a safety committee composed of representatives from almost every department who report on conditions in the department and who work

together in every way to improve plant conditions so as to reduce the accident and ill-health rate.

This committee does not confine its attention to the physical conditions of the plant alone, but is also responsible for causing each worker to desire to apply the "safety first" idea. A safety device will often slightly complicate the operation of a machine. The men who operate



Figure 12. Pig-Iron trestle shield to prevent flying chips from injuring workmen, used by the U. S. Steel Corporation.

the machine are inclined to take off the device and "take a chance." The safety committee will work with the foremen and the management to prevent this and to teach all the men what their part in accident prevention is.

Compensation-Insurance Laws. Almost all industrial states have specific compensation-insurance laws. The

details of these laws vary in different states. A typical compensation-insurance law is shown in the Appendix on page 63.

An indirect benefit of these laws is the intensive study of safety devices which the insurance companies have made. Their recommendations cover safety devices for every type of equipment. Their inspectors are glad to co-operate with management in making a plant as safe as possible for the workers.

But safety does not depend on equipment alone. In many cases the practices of an industry must be changed to insure safe working conditions. An organized study of the entire safety problem is constantly being made by the National Safety Council, with headquarters in Chicago. This organization is always glad to co-operate with any safety committee in working out safety plans.

Results of the Study of Accidents. Certain results of the general study of accidents are interesting and valuable. It has been found that the most common causes of accidents in all sorts of industries are—

1. Hand tools and hand apparatus.
2. Falling articles.
3. Hoisting and moving objects.
4. Power-driven saws.

There is a rapid increase in the number of industrial accidents as the days shorten each fall and more artificial light is used in the shops. But in factories that are well lighted and heated, there is no such increase in accidents at this time of year.

Variation in the rate of accidents at different times during the day shows the effect of fatigue on the workers, and gives a basis for adjusting the rest periods so as to prevent undue fatigue. Many other worth-while observations have come from a study of industrial accidents.

The Results of Safety Work. Complete elimination of accidents must not be expected as soon as safety work is started. It takes time to educate men to observe safety

regulations. However, in the Pennsylvania Railroad Company the accidents in one shop group of 33,000 men were reduced by 63 per cent in one year. The Cadillac Motor Car Company reported a reduction of 64 per cent after the first year's intensive safety work in a shop then employing about 3,000 men. The Pullman Company reported that the average of lost time for accidents was reduced in one year from forty-eight minutes per employe to thirty-four minutes—and the money value of saving fourteen minutes of time for each worker was far greater than the cost of the safety campaign.

Equally as important as the direct money savings is the fact that safety work largely does away with fear of accidents which often slows up production. It also promotes the development of better feeling between management and men.

Fire Prevention. Closely allied with the prevention of accidents is fire prevention, which, in fact, is often considered one of the functions of the safety committee. Here also the fire underwriters' bureaus are eager to assist those who have hazards to remove. Among the many means of fire prevention are the following:

1. Ample fire escapes.
2. Automatic sprinklers, with an abundant supply of water independent of the ordinary system.
3. Chemical extinguishers.
4. Fire hose at sufficiently close intervals to be effective.
5. Water buckets and sand buckets kept filled and available for immediate use.
6. Metal cans with self-closing lids to receive oily waste and any other inflammable material.
7. Fire drills among employes.
8. Shop fire companies.

Medical and Hygienic Work. Service that safeguards the health of employes varies in kind and extent with differences in the type of workers employed and the location of the plant. Matters of light, sanitation, and ventilation were considered in Executive Manual 35 in connection with layout.

Figure 13 shows the system by which pure, washed air is furnished in some of the Ford Motor Company plants.

In the United States, thirty million workers lose an average of nine days a year thru sickness. The value of this lost time and the cost of medical attention total more than a billion dollars. This expense falls heavily upon



Figure 13. Photograph showing the location of column ventilators at the Ford Motor Company. Washed and humidified air under pressure enters thru the openings in the columns.

both employer and employee. That it can be, and is being, greatly reduced is indicated by the fact that various industrial establishments have reduced their losses due to sickness by 50 and even 75 per cent.

In these establishments, the company physician, if on full time, gives a physical examination to every new and rehired employee; he visits the homes of sick or injured employes, and he makes plant and yard inspections to insure that conditions are sanitary and hygienic.

Where a company physician is employed on part time only, it is customary to have him make examinations of

groups of new employes from time to time instead of examining each one at the time of hiring. In this case, the newly employed are hired subject to passing a satisfactory medical examination.

Many large companies employ one or more home-visiting nurses. Smaller companies can supply the same service by co-operatively hiring one or more nurses; or a



Figure 14. A typical emergency hospital in an industrial plant.

small company may hire a nurse part time. These visiting nurses investigate and report on employes who have been absent, say, three days or longer. They co-operate with the company physician in giving personal education in matters of sanitation, hygiene, and nursing.

Dressings for minor injuries are taken care of by the company nurse or physician at the company's emergency hospital. Figure 14 shows a typical industrial emergency hospital room.

Medical work aims to cure defects and disease before they become serious. When an injured or a sick employe is properly treated and sent home, he is likely to be absent but a day, while delay in treatment may result in a much longer absence.

Cafeteria and Lunch Rooms. The right food eaten under the right conditions helps much in maintaining an efficient personnel. This service is often not available unless the management provides it.

The influence of pleasant surroundings during meals on the digestion and temperament of employes has led many industries to provide attractive lunch rooms, instead of compelling employes to eat from their lunch boxes in alleys or around their machines and work benches.

Even tho no luncheon service is provided, tables can be furnished in a well-lighted room decorated with a few plants and pictures. Arrangements can also be made for warming the soup, coffee, and tea brought by the employes.

Athletic Activities. Nearly all workers like to take part in athletics, particularly in competitive games. Baseball appeals strongly to most men, and it is usually easy to organize one or more teams.

Where there is little opportunity outside the plant to take part in games, the management can usually well afford to provide certain recreational games open to practically every employe, such as volley ball, basketball, football, soccer, and track athletics. An athletic committee can supervise recreational sports at the noon hour in the factory yards or grounds, after shop hours, and on Saturday afternoons, and can conduct a field day for sports.

These games do more than conserve and build up the workers' physical health. They bring the men together in friendly rivalry, which fosters teamwork and good morale while they are working together.

In certain kinds of occupations the recuperative effect of calisthenic exercises during a brief morning and afternoon rest recess should also be considered.

Experience with organized recreational activities in many industrial establishments has proved that—

Some play makes "Jack" a brighter and happier boy at his work; it promotes health and good fellowship, and is a powerful force in developing plant spirit and good will.

Social Activities. Receptions and socials in social centers, as in schoolhouses near the residence center of the employes, can be conducted under the auspices of a committee of employes who will arrange a program and use as much of their home entertaining talent as possible. Such occasional receptions, together with weekly musical entertainments or illustrated lectures during the noon hour, help to build up *esprit de corps*. "Smokers" for the men, dances for the young women and their friends, and company celebrations of national holidays are among the social activities which have been successfully carried out.

In order to increase interest in the home, a garden club may be promoted in which prizes are offered for the best back yard, the best vegetable garden, the best flower gardens, and the best window or porch boxes of flowers.

The Shop Paper. A shop paper can do much to stimulate better employe relations. It enables employes to become better acquainted with each other by portraying the human side of their lives. In it can also be published the records of awards, promotions, and changes in personnel; production records; sales records; and the story of new products and business developments. It lists future athletic events and social functions, and reveals interesting personal facts about the home life of employes.

The shop paper may also run cartoons, humorous articles, and suggestions regarding good reading, both general

and technical. While it should avoid obvious preaching on economic subjects, the plant paper should clearly express and explain the company policies.

A shop paper should always be informal. Management and men should be treated as "just folks." Where the organization is not large enough to warrant publishing a regular paper, much the same purpose can be served by frequent informal notices on bulletin boards. These boards, however, must be kept clear of "old stuff" or interest in them will fade.

The Suggestion System. A well-handled suggestion system has a value that is greater than the direct benefit from the improvements that are suggested. It encourages employee initiative. That is why suggestion systems are usually considered as part of personnel work. In maintaining an efficient personnel, we should remember that—

When all the men are thinking about things the company can do in better ways, they develop initiative, which is worth fully as much as the improvements actually installed as a result of suggestions.

The usual manner of encouraging suggestions is to provide boxes similar to mail boxes at various points conspicuously marked "Suggestion Box." The rules governing the suggestion system are usually posted on or near the boxes. Forms on which suggestions are to be written are usually provided. Figure 14 shows such a form.

The suggestions are collected at regular intervals. It is usually desirable to classify the suggestions and to have their merits determined by different committees, such as committees on—

1. Machinery and tools.
2. Savings and improvements in nonmachinery process.
3. Health, safety, and general welfare.
4. Improvements in shop and office systems.
5. Suggestions for advertising and selling.
6. Improvement of product.

No. 317

BEE DEE ELECTRIC COMPANY SUGGESTION BLANK

We welcome and will investigate carefully any suggestions which will benefit the company and its employees. An award will be made for all suggestions adopted, according to their merit.

Express yourself clearly and concisely in describing your suggestion. Whenever necessary, make sketch on separate sheet of paper.

Tear off and keep coupon, and in all correspondence with regard to your suggestion refer to its number and date.

I SUGGEST:

I believe the above suggestion will result in (1) Improvement in Product.....(2) Reduction in Costs
.....(3) Improvement in Manufacturing
Methods.....(4) Reduction in Accident or
Fire Hazard.....(5) Conveniences
Signed..... Reg. No.....
Dept..... Date.....

No. 317

Employee's Coupon—Suggestion Blank

I Suggested:

Date.....

Note—Be sure to keep this coupon for reference.

Any employee who is not satisfied with the disposition made of his suggestion, or the award given him, should call at personnel department any time following the distribution of the awards and state his case to the personnel director, who will endeavor to adjust it satisfactorily.

Figure 15. A form on which the employees can submit suggestions. These suggestions are considered by committees and suitable rewards are given for those that are accepted.

It will add greatly to the interest in a suggestion system if prizes are offered in each group as well as additional prizes for the suggestions which result in the greatest economies or profits within six months or a year after their adoption.

Many companies rely largely on suggestions from employees for improvement of their products. The late John H. Patterson stated that the many improvements in National cash registers came from their suggestion system.

Benefit Societies. Company benefit societies have been conducted for a good many years in many industrial concerns. The original aim of most of these societies was to provide insurance in case of accident, sickness, or death. Within recent years most states have passed compensation laws which provide insurance for accidents, as previously explained.

There still remain, however, many employee benefits which can be provided by company benefit societies. Among these are insurance in case of sickness of a worker or of any member of his family, vacation and Christmas savings plans—possibly securing special rates for vacation trips and camps—and building and loan service, which stimulates home owning among the employees.

The benefit association will sometimes also act as a savings bank. It does not engage in a banking business, of course; but it encourages regular small deposits by providing convenient places of deposit and by appeals to thrift printed on the pay envelope or on a card inclosed in the pay envelope. The funds collected are immediately deposited in a regular banking institution.

Legal Advice. Legal counsel is often needed by working men, but they rarely feel that they can afford to consult a good lawyer. If one of the company executives is a man with legal training, he can be of great service to his company by acting, not as an attorney, but as a legal counselor to employees. This service can earn employee good will far in excess of the cost.

The Company Store. When a factory is so located that good groceries are not easily obtainable at reasonable

prices, a company store may prove valuable as a means of keeping employes contented.

Goods should never be sold below cost, for that "pauperizes" the men. The men should also feel free to buy elsewhere if they choose. If practical, the operation of the store should be directed by a committee of workers, for otherwise the men may be suspicious of the motives in operating it.

Usually the same men run the store who run the cafeteria. Orders for goods from the store are usually placed at the lunch hour and are assembled and wrapped in the afternoon to be called for after closing time. Price lists may be published in the shop paper or posted on the bulletin boards.

Patriotic or Charitable Campaigns or Drives. Collections of funds for charitable uses are best handled by the personnel department, since it can protect employes from too much solicitation and can select the more worth-while objects—not forgetting the hospitals or other institutions that have been of material assistance to the employes.

We have now covered the principal kinds of special services to employes and we can see in them some of the ways by which management co-operates with the men in making them healthier and happier in their work. All services of this kind, if practical, are largely managed by the men themselves. They are not paternalistic in nature. They are extremely important as a means of maintaining an efficient personnel with a minimum turnover of labor.

Again, Step into the Woodworking Plant. As a concrete summary of what we have read in preceding pages on this subject of directing man power, let us again visit the woodworking plant we inspected in Part I.

Three months have passed. What has the industrial engineer done to better the situation?

His first move was to have one man, under his direction, make an analysis of the jobs and of the workers. His intimate acquaintance with the industry made job analysis almost unnecessary so far as he himself was concerned, but he intended to make the foreman of the machine room the employment manager and took this means of acquainting him with his new duties.

The job analyses showed several "misfits" among the workers. One man who operated a machine carver did poor work because his eyes tired quickly. This man's wide experience and his pleasing personality suggested that he might make an excellent foreman in the machine room, to take the place of the man who was to be employment manager.

Uniform rates of wages for the same class of work were adopted. Discrepancies in wages, which had caused much ill will, were found to be more apparent than real. The high wages of some men had been paid in an effort to pay them what they were worth. Some of these better men were made "squad leaders" and others automatically fell into the higher paid classifications which job analysis established. This cause of discontent disappeared.

Few men left because of these changes, for the industrial engineer had inspired all with confidence that the changes to be made would benefit all. This was a good time, therefore, to start the new employment manager in his new work.

Employee Services Were Installed. Safety work was at once begun. A safety committee was organized with the foreman of the cutting room as its chairman—the man who had been lax in insisting on the use of safety devices! Since he was now responsible for safety work in other departments, he felt that his own department had to toe the mark.

This committee also was made responsible for general working conditions in the entire plant, since dirt and darkness are so largely responsible for accidents and fire.

Another "sore spot" was healed by recognizing the ambition of the foreman of the assembly department. He was given the title of "assistant superintendent in charge of assembly and finishing." He was made chairman of the shop suggestion committee—where he could not take credit for the good suggestions of others, because the suggestions came to him thru the hands of the employment manager.

The foreman in charge of finishing was forced to resign, because he persisted in the same bullying attitude in the foremen's conferences, which had just been started, that he had taken with the men. His responsibilities were assigned to the new assistant superintendent, who appointed two squad leaders to serve as acting foremen of the department. These two squad leaders were earnest students of foremanship.

The former foreman of the machine room, now the employment manager, was encouraged to study the entire personnel situation and discuss its possibilities with the management and with representative men from the working force.

The Change in Esprit de Corps. As a result of the reorganization, one intangible but potent change plainly noticeable is the new spirit among the men—a spirit compounded of the sense that their welfare is being considered; that each is getting a square deal, with opportunity for promotion; and, perhaps most of all, that they are all being treated as *men*, not as machines.

Consequently, they now take pride in "our company." Few good men are leaving. The departments are pulling together. Suggestions for improvements are coming in. Schedules of work are not delayed. In short, scientific methods are establishing sound control over that most elusive element in production—the management of the men.

CHECK-UP ON PRINCIPLES

Use the following check-up to get the principles of this manual firmly fixed in mind. This will help you to handle the problem which follows. This check-up is entirely for your own personal use, so you need not send it in to the University.

	Check	
	Yes	No
The credit man of a clothing-manufacturing concern always thought and spoke of the shop workers as "my fellow employes" and "our workers," but never wore the company's low-priced styles. The chief clerk spoke of "the shop hands," but wore his company's suits with evident pride. Is the attitude and example of the latter more helpful in building up morale than that of the credit man?		
Can a well-developed personnel-service organization fully counteract the damage done in a department by an unfair and tyrannical foreman?		
Have you made a job analysis of the position you now hold?		
Have you made a job analysis of the position you hope to hold in twelve months?		
A personnel manager is studying his statistics. In 1924 the labor turnover was 66 per cent. During the first six months of 1925 it was at the rate of 59 per cent; the detailed showing being: January, 53 per cent; February, 55 per cent; March, 57 per cent; April, 62 per cent; May, 64 per cent; June, 65 per cent. Has he reason to be satisfied with this showing?		
Would you recommend to a friend that he choose a \$3,000 job where working conditions are congenial rather than a \$3,600 job where the management is "distant" and esprit de corps is low?		
Do you consider it more effective to put social affairs, athletics, benefit societies, etc., in the hands of committees of employes, than to employ a high-grade personnel man to run these affairs for the organization?		

	Check	
	Yes	No
What methods of training appear to you to be practical in the organization of which you are a part? Apprentice system ☐ , vestibule school ☐ , foremanship training ☐ , co-operation with local schools ☐ , co-operation with local library ☐ , correspondence courses ☐ .		
Would you appreciate free legal advice on personal problems as a feature of employe service?		
Have you a practical working knowledge of the benefits to you and the obligations placed upon you by the workmen's compensation act of your state?		
Does it differ materially from the law shown in the appendix?		
Has a safety-first campaign been effectively pushed in the organization of which you are a part?		
Is a safety committee constantly active?		
Have you, as you studied this manual, discovered ways in which you can help to improve the general morale of your organization?		
Have you resolved to work out these ideas?		

Executive Problem 39

SELECTING AN EMPLOYMENT MANAGER

A Study of the Characteristics Needed
in Employee-Service Work
UNDER THE LASALLE PROBLEM METHOD



"IT'S the spirit of the man in charge that counts most," said a thoughtful executive in discussing the causes of success and failure in the employee-service plans undertaken by several organizations. Is he right?

In this problem you will analyze personnel activities to find the man who can best head them. Will it be his experience, his native ability, his personality, or his training that should be considered? What weight will you give to each?



Prepared by the Research and Consultation
Staff of LaSalle Extension University from an
interesting problem which it has carefully in-
vestigated and analyzed.

SELECTING AN EMPLOYMENT MANAGER

Every department in a business gains its tone and its efficiency from the executive at its head. If we want an efficient employment department, we must employ an employment manager who is fully fitted to handle such a department. And if we plan to introduce personnel activities, their success will depend largely on the executive who is to be responsible for this work.

You have studied the employment and personnel activities of industry. Do you know of a better way to crystallize your knowledge than by helping to select a man who is qualified to do employment and personnel work? That is what you are to do in this problem.

The Parker Tire Company has been having a great deal of labor trouble. Its men are discontented. The more radical element is urging the others to strike for higher wages and better working conditions, and this notwithstanding that the wages and working conditions compare favorably with those in other similar plants.

The Parker Tire Company employs about 300 men. About half of the present force is foreign born and half come from what is known as "American stock." About a third of the workers are of the class known as "common labor"; that is, their work calls for little skill and no special physical or mental qualities.

The rest of the men are more or less skilled tire makers. A number of "tire builders" are required; these men must be trained for some six weeks before they can make a good tire without constant supervision. The "tire finishers" require considerably more training.

Neither of these classes of work, however, calls for more than an ordinary education, and dexterity gained thru practice.

There are, of course, a number of inspectors, assistant

foremen, and foremen. There are also several expert rubber workers, mixers, vulcanizers, etc. These experts all hold themselves rather aloof from the rest of the working force.

The experienced tire builders and finishers are quitting continually and few experienced men are inquiring for work. It is noticeable that the men who have been recently employed are less efficient. The morale of the organization is slipping.

In this company the foremen do all the hiring and firing, and there seems to be plenty of each to do. No record of labor turnover is being kept, however. There is no systematic record of the labor situation. The only labor policy thus far has been to pay as little as possible, and to comply with all state laws regarding safety, compensation, and the like.

There is no plant spirit among the workers, and they have practically no common interests. The tire-building department had a good baseball team until a year ago, due to the initiative of a former department head. Now, however, even in that department the men do not know each other's names.

The situation has become so serious that profits are being seriously affected. The general manager was asked to resign, and the new executive has recommended, as one of his first acts, that all employment work be centered on a competent employment man. He plans also to have the employment manager introduce "employee service" features as fast as proves practical. The man who is to handle the employment work will be selected therefore, not only because of his ability as an employment man, but as much because of the qualities he must have to direct the training work and other personnel work which will soon be introduced.

Three men are being considered for this position, and the facts in regard to each are as follows:

Mr. Johnson

Mr. Johnson is a man who has had considerable experience in personnel work. Starting as a clerical worker, he became assistant to the manager of the employment department of a large public-utility company. Then he became employment manager of a clothing concern, and afterwards assistant director of a joint employment agency maintained by a group of manufacturers in one of the large cities.

He left this position to become personnel director of a munitions plant during the War, a position which he held for one year. At the time of the Armistice, he became employment manager of a storage-battery plant, where he remained for a period of two years. He then went into business for himself, but did not make a success of this, and now desires to get back into the employment field again.

Mr. Johnson is American born, fifty years of age, married, and has one married daughter. While he has had only an ordinary education, he has read widely and possesses a good background of general information. He resides in a neighboring city, but is willing to move if he secures this position.

His knowledge of employment work is excellent and his experience varied. He has had no personal experience in any shop, and no acquaintance with tire manufacturing. He is socially inclined by nature and has a rather pleasant personality, tho he has a tendency to be egotistical.

His references show that his work has been satisfactory to his former employers. He has displayed a tendency to make frequent changes. This, on the whole, does not indicate his judgment to be any too sound. The only definite criticism which has been received regarding his personality is that he wants to run things.

In physique he is of medium stature and seems physically sound.

He desires a salary of \$4,000 to start.

Mr. Slocum

Mr. Slocum is a graduate of one of the Eastern colleges, age twenty-seven, married, and has one child. His experience consists of two years in a machine shop, one year in a ship-building plant, one year on time-study work for an automobile-tire company, and one year as assistant employment manager of a machine-tool building plant.

Altho Mr. Slocum has not had a great deal of experience in employment-management work, he offsets this with a thoro knowledge of the class of work done by the Parker Tire Company, which will be of special value to him in preparing job analyses for the different classes of work; he has, moreover, a good understanding of employment work in general. While he has had no experience in training and service work, there seems no reason why he cannot learn all that is necessary about such work and grow with his job, especially since this work will have to be introduced gradually.

He is socially inclined, but is a follower by instinct rather than a leader. His personality is not outstanding and he has shown little ability to "sell" himself and his ideas.

The reports received from his previous employers, however, are very commendatory, and especially emphasize his earnestness, conscientiousness, and originality.

He is a local resident and is willing to start at a salary of \$3,000.

Mr. Evert

Mr. Evert is a young man who was in the employ of Parker Tire

Company for some years, but is now employed by a neighboring manufacturer. He has earned consideration for this position by the qualities for leadership which he showed in organizing such plant activities as the baseball team in the tire-building department of which he was then assistant foreman. He is a high-school graduate, and was with this firm over five years, during which time he worked as chaser, production clerk, and assistant foreman. He has for the past three years been foreman of one of the departments of a local automobile-accessory factory.

This company has a well-organized employe-service department. Mr. Evert has been much impressed by the effect of this department's work. He has caught a vision of what such work means in industry, and has been reading and studying about personnel matters so that he might the better co-operate in his company's personnel work.

He has had no direct experience in such work, except for employing the men in the departments where he has been assistant foreman and department head. His judgment regarding personnel matters has been tested on several occasions, however, and as manager of the baseball team, as well as when employing men, he has shown real ability to pick men and place them in the proper positions.

Mr. Evert has a pleasing personality. He is thirty years old. He has not as yet developed the poise and bearing that the other two candidates have.

He is single, is well known to the heads of the organization, and is popular among the men.

He is at present receiving \$2,400 a year, and is willing to start the new work at the same rate, relying upon his success at this job to gain him further increase.

* * * * *

In studying the characteristics of these men carefully, you will find many elements of strength in each and certain elements of weakness. They are all good men. To determine which man is best qualified and which has the greatest possibilities, you will first want to analyze the position—in other words make a job analysis of the employment manager's job. This you will do on the working papers, and you will then determine which of the three men best fits the specifications of this job.

APPENDIX

A REPRESENTATIVE COMPENSATION LAW

Practically all the States, Canada, and almost all other enlightened industrial nations have workmen's compensation laws. No two are exactly alike, but all are based on one common principle—that the employe should not bear the entire burden of injuries incurred in connection with his work.

The state of California has an excellent compulsory compensation law, which meets fairly the demands of the employe, the employer, and the public. The principal features of this law are given below.

Injuries Compensated. Injuries or disease arising out of and in the course of employment (including injuries to intoxicated members), causing disability for more than seven days; or death not intentionally self-inflicted and not the result of the intoxication of the injured employe.

Industries Covered. All except agriculture and domestic service, which services may come under the act by joint election.

Persons Compensated. Private employment: all employes, including apprentices and aliens, excepting casual employes not in the course of the employer's trade or business. Public employment: persons employed by the state and its political subdivisions and all public corporations, including officers and enlisted men in the National Guard.

Burden of Payment. Entire cost rests upon employer.

Compensation for Death:

- (a) Reasonable expense of burial, not exceeding \$100.
- (b) To persons wholly dependent three times the annual earnings of the deceased employe; not less than \$1,000 nor more than \$5,000, payable at least semimonthly in installments equal to 65 per cent of the wages. Payments to children cease on their reaching the age of eighteen years, unless mentally or physically incapacitated for earning a living.
- (c) If only partial dependents survive, three times the annual contribution of the deceased to their support, subject to the same limitations as above.
- (d) If no dependents, burial expenses, and \$350 to be paid to a rehabilitation fund. Any disability payments made and

burial expenses paid are to be considered parts of the foregoing totals.

Compensation for Disability:

- (a) Such medical, surgical, and hospital treatment as may reasonably be required to cure and relieve from effects of injury.
- (b) For temporary total disability, 65 per cent of average weekly earnings during such disability.
- (c) For temporary partial disability, 65 per cent of weekly loss of wages during such disability.
- (d) For permanent disability, 65 per cent of average weekly earnings for periods varying from 4 to 240 weeks, according to the degree of disability. After the expiration of 240 weeks, a further benefit varying from 10 to 40 per cent of the weekly earnings is payable during the remainder of life, when the degree of disability reaches or exceeds 70 per cent.

The aggregate amount of benefits for a single injury causing temporary disability is limited to three times the annual earnings of the injured person, with a maximum benefit period of 240 weeks.

In case of permanent incapacity or death, a lump sum may be substituted for benefits, such lump sum to equal the present value of the benefits computed at 6 per cent. Average weekly earnings shall be considered as not less than \$6.41 nor more than \$32.05.

Revision of Benefits. Decisions and awards may be reviewed at any time during the first 245 weeks, after legal notice is received.

Insurance. Insurance is required in the state insurance fund or in any authorized insurance company, unless the employer furnishes proof of ability to carry his own insurance. Municipalities are required to insure in the state fund unless the risk is refused.

Security of Payments. A claim for injury or death of an employe or any award shall have the same preference over other unsecured debts as given by law to claims for wages, but not so as to impair a lien or a previous award. Policies insure directly to the benefit of employes, who also have a first lien on any amount due the employer from the insurance company. Self-insurers may be required to give a bond or domestic securities.

Settlement of Disputes. Disputes are settled by the state Industrial Accident Commission, subject to a limited review by the courts.

BUSINESS MANAGEMENT

WAGE PLANS AND PRO- DUCTION REPORTS—Being Executive Manual 40, on Principles of Pro- duction, in a Complete Plan of Training and Service for Executive Work

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WAGE PLANS AND PRODUCTION REPORTS

Part I

CONTROL THRU WAGES

WHEN you buy bread or shoes or an automobile, about three-fourths or more of the price you pay goes to pay wages to the workers who contributed to the making and sale of the article. In many industries, wages make up more than half of the manufacturing costs. Thus the importance of the part that wages play in production is evident.

Are wages of interest to management only because they are an element of cost which cannot be avoided? Are wages a "necessary evil" which must be kept down to a minimum? Or can management use wages as one of its effective controls? Can it use the wage payments and plans as powerful aids in attaining its purpose of producing the best quantity and quality of goods at low cost? Can it earn satisfactory profits and, at the same time, pay good wages?

These questions will be treated in their broader phases in Executive Manual 66, which deals with compensation and incentives. We want to see here, however, how management is able effectively to control production and benefit the workers thru the amount of wages paid to the men and the methods of payment.

Wages Considered as a Whole. Let us first consider wages as a whole, remembering how large a proportion they are of the total cost.

It is obviously true that management must seek constantly for means by which the *total* wages paid for making a certain quantity of goods may be reduced, for—

Management must strive to reduce the cost of labor as well as every other element of cost, especially so if it faces price competition in its sales.

This principle, however, does not mean that wages *per worker* are always to be reduced whenever possible; it may mean the paying of higher wages, for better paid men may turn out goods in such quantity as to give a lower labor cost per unit of product than is attained by lower priced labor.

When management takes up the question of wages scientifically, it finds that—

The wage cost per unit can, in general, be reduced more effectively by increasing the output per worker than by decreasing the wages per worker.

Management aims, for example, to reduce the labor required in transporting materials and parts from place to place by the use of conveyors and mechanical devices of many kinds which enable a few men to handle goods that otherwise would require a small army of laborers.

Management tries constantly to keep down the cost of both direct and indirect labor; it does not consider indirect labor as nonproductive labor. Whenever one man can do the material moving or the planning or the writing for several direct-labor workers, at lower cost than when each direct laborer does these things for himself, then, of course, the cost per unit of product is lowered by having one man do these things. This is application of the principle of specialization:

The efficiency of labor is greater, and therefore the labor cost per unit is less, when each worker specializes on the work he is best able to do.

Scientific Management and Labor Costs. The reduction of labor costs thru the use of labor-saving machinery was going on before scientific management, as such, was thought of; and under modern scientific management the methods of manufacture are under constant investigation to see whether plans which will mean less labor cannot be devised.

Scientific management has done more than this, however. As we saw in Executive Manual 35, it has centered the attention of management on finding the most efficient ways of using tools and machines. As a final step, scientific management has called attention to wage plans which serve as incentives to good work and give to management an effective control of labor costs.

The Objectives of Control thru Wages. The objectives which scientific management is successfully reaching by methods in which wage plans are an important part are outlined in Figure 1.

No one wage plan will accomplish these results equally well in all industries, or even in all kinds of employment in one industry. Mr. F. W. Taylor considered that the "differential piece-rate system," which he invented and which will be described on page 15, was excellent for machine-shop work. Yet he used it only under certain conditions and often recommended one or more other wage plans in addition, even in the same plant.

Careful thought must be given to the different wage plans in determining which will best accomplish the results (see Figure 1) that a wisely selected system of wages will help to produce. In making this decision, knowledge of the principles of psychology, as explained in Executive Manuals 9 to 16, and knowledge of production, as presented in preceding manuals, will be of great help.

Many practical considerations enter into this problem. It cannot be solved by applying a mathematical formula; its correct solution requires application of good common sense and a keen understanding of human nature, as well as thoro knowledge of the various wage plans, how they differ and why.

First, the Base Rate. In planning what wages to pay, the first thing that must be settled in every case is the base rate for the different classes of work. The base rate

WHAT CONTROL THRU WAGES IS ACCOMPLISHING

1. Costs per unit are reduced—
By securing greater production per day; thus creating a saving in direct-labor cost per unit, and also a saving in overhead expense and fixed charges per unit.
2. The rate of production of the plant and equipment is increased—
By increasing the rate of production per worker. If the same men and machines turn out 25 per cent more work, it is equivalent to increasing the plant capacity 25 per cent—and without any cost for construction.
3. The labor turnover is reduced—
By paying men as much money as or more than they can earn anywhere else.
4. The good will of the workers toward the management is increased—
By giving them a “square deal” and paying each in proportion to his worth to the company.
5. Teamwork between one worker and his fellows and between the workers and management is brought about—
By making teamwork pay. This is especially true where the wages are based on group efficiency.
6. A method is provided for promoting the men—
By providing standards by which the worth of the men is measured.
7. The company gains a good reputation locally and attracts the best type of workers—
By giving each man his chance to make as much as he is capable of earning.
8. The workmanship and consequently the quality of the goods are improved—
By providing standards which the workmanship of the workers must meet.
9. The cost of management is reduced—
By reducing the time wasted in stimulating uncontrolled production, by enabling management to estimate its production program more exactly, and by securing co-operation from the men in carrying out the plans of management.
10. Profits are increased—
Not only by reason of all the savings listed above, but also by producing goods whose low cost, uniform quality, and assured delivery dates make them more readily sold.

Figure 1. Above are ten results which various wage plans are accomplishing in many plants.

may be defined as the wages per hour, per day, or per week that must be paid for each kind of work in order to attract and hold the right kind of workers. Only after the base rates are established can we decide on ways of determining whether or not the base rates are being earned, how the exact amount to be paid each worker should be calculated, what wage incentives we should offer for extra effort, and how these incentives may be most effectively paid. Figures 2 and 2A show many of the factors which affect the base rate.

WAGE PLANS IN USE TO-DAY

Both management and men have given much attention to various wage plans during the last three decades. At first nearly all workers felt and said that their interest in wage plans was just opposite to the interest of management. Many workers still take this position. But there are to-day many other workers, and particularly the more broad-minded leaders of labor, who realize that wage plans can be worked out which will accomplish just such worth-while results as numbers 4, 5, and 6 in Figure 1, and that the other results there listed are at least indirectly an advantage to the men as well as to the management.

Classes of Wage Plans. The various wage plans that are now in use may be classified into the following groups:

1. Time work, in which payment is made for the time of the worker by the hour, the week, the month, or the year.
2. Piecework, or contract work, in which payment is made in accordance with the amount of work done, regardless of the time it takes to do it.
3. Premium systems in which a premium is paid for exceeding the time rate of past records of performance.
4. Bonus and efficiency systems based on standard times and standard working conditions.

Time Work. Time work is the oldest wage plan, and is to-day more generally used than any other. Many

THE MORE IMPORTANT FACTORS WHICH AFFECT THE BASE RATE ARE:

1. **Current rates.** The prevailing rates paid for a given class of work in the vicinity where the industry is located.
2. **Current labor conditions.** When there is keen competition for workers, wages tend to increase, while they tend to decrease when there is little to do.
3. **The experience and skill required.** It is important that all the jobs be analyzed and classified, since different degrees of experience and skill are required for work which is superficially similar. A workman with skill sufficient to grind a shaft to within .0002" of accuracy deserves more pay than a man who can grind with accuracy only to within .002". When our job specifications state definitely what degree of skill and experience is needed, the base rate can be adjusted accordingly.
4. **The personal characteristics required.** Certain personal characteristics, such as alertness, accuracy, tact, etc., are required for certain jobs, and must be paid for. Other jobs require courage. Others require peculiar strength. It may be necessary to add certain amounts to the base rate to get these qualities.
5. **Minimum-wage laws.** The law in certain states sets a minimum wage which an employer must pay, especially to women and to youthful workers.
6. **Public sentiment.** The employer who takes undue advantage of the law of supply and demand and pays his employes less than what the vicinity considers a "living wage" runs counter to public sentiment. His men tend to leave when conditions become closer to normal, and his business reputation will suffer.
7. **The relation of labor cost to selling prices.** In competitive businesses and in the operation of public-service companies, a definite limit is usually set on the selling price which any producer can charge. The base wage rate is then limited by the amount that can be paid for wages after considering the amounts to be paid for materials, supplies, expenses, and a reasonable profit.

Figure 2. Some of the principal factors which enter into a decision regarding the base rate of pay for each class of work.
See also Figure 2a.

GENERAL FACTORS WHICH TEND TO INCREASE THE BASE
RATE ARE:

1. **The time of service.** To encourage staying with the company, it is customary with most companies to add a small amount to the base rate after certain periods of service, as at the end of the first, second, third, and fifth years.
2. **General usefulness.** Men of all-round usefulness, who can, for example, act as squad leaders when this is necessary, or who can head the company ball team or the company band, or who serve well as employe representatives on the safety committee, deserve a somewhat higher rate of pay.
3. **A reward for some signal service.** A permanent increase in rate of compensation is a most appreciated reward for some unusual service, such as a heroic rescue of some fellow employe from danger, a discovery or invention which markedly increases profits, and the like.

Figure 2a. These factors are important in building up a fine plant spirit.

workers like it because of its definiteness. If the worker measures up to a certain rough standard of efficiency, he gets a definite income. If his workmanship is poor or slow, this does not affect his wages, as long as he keeps his job.

Under this system in its usual form there is no record of what each man does. There is no incentive for effort except for the man who appreciates the value of being known as a "good man" by his boss and his fellow workers. There is no penalty for ordinary inefficiency or time killing.

It is possible to use time and motion studies, instruction cards, routing, scheduling, and many of the other features of scientific management in connection with men paid by the day; but unless some special inducement is offered to the employe for his success in following instructions—which implies a penalty for failure to do so—only a small part of the advantages which can be gained from standardization and planning will accrue.

When modern production methods are put into use in a day-rate shop, the advantages gained may yield a profit; but—

Unless special rewards are offered to the men who co-operate in making greater profits possible, there will be too much neglect of the instruction cards.

This applies particularly to day work in which the workmen of a given trade or handicraft are all paid at the same rate, regardless of individual merit. Even before time standards and instruction cards were used, however, management realized that good workers should be paid more than poor ones on the same class of work. This required a plan of compensation or promotion under the day-rate method that would reward individual merit.

Many such plans have been tried, and many are in use with varying success, depending largely on the skill and care with which the foremen judge the men and supervise their work—

It must also be remembered that—

Proper supervision, standardization, planning, and good working conditions go far toward avoiding losses under a day-rate system.

These conditions are, moreover, necessary to the successful use of any other plan of payment.

Using Efficiency Records with Time-Pay Rates. A method which uses standard times set by time and motion study measures the efficiency of day-rate workers quite accurately. The rate of wages can then readily be adjusted to the efficiency of the individual worker.

Under this method, the correct standard times for various jobs are established. The time each employe takes on these jobs is from time to time compared with the standard times. If the sum of these standard times is divided by the time which he actually took, we get a percentage which gives his approximate efficiency on standardized work.

During a certain week, for example, a man may work on jobs for which time standards have been established, and the total of these standard times may be thirty hours. If the time actually taken by the man to do these jobs is forty hours, then his approximate efficiency is thirty divided by forty, or 75 per cent.

When these tests are made on the different workmen, it is often found that some workers turn out regularly as much as two to three times the quantity of work done by other workers. The more efficient workers' rates are then gradually increased until they are one-third or more higher than the former average rate.

The workers who are inefficient may be coached to help them increase their efficiency. If they do not succeed in raising their efficiency, consideration should then be given the matter of transferring them to work that they are better fitted to do.

Under an efficiency-promotion system of this sort, increase in the hourly rate of the employe may be made at intervals until he reaches his maximum rate. This plan attracts exceptionally good workers, because they know that they will receive good wages.

An understanding must be reached at the outset with any organization which represents the men, to the effect that the maximum rate will not be demanded for all its members, and that men whose efficiency records show them to be unfit may be discharged. Unless this is done, promotions and demotions are likely to cause labor difficulties.

The Ordinary Piece-Rate System. An ordinary piece-rate system, which pays a fixed rate per piece of work turned out, looks, on the surface, like a plan which makes each man his own master and inspires him to do his best. If employers were always fair and workers were always reasonable, an ordinary piece-rate system would give adequate control thru wages. But this system

has been so badly abused that there is a strong prejudice against it.

Piece rates have, to some extent, been used as a bait to speed up the employes and then, when a pace was reached at which the best workers earned more pay than the employer thought was necessary, the rate was cut. It takes only a few such cuts in a shop to rouse the workers' hostility toward the system and antagonism toward the management. When the workers know that cuts are likely to be made, they are inclined to loaf on all new work in order to have the piece rate set as high as possible.

In plants where cutting the rate is practiced, the workers soon learn what the employer considers to be a maximum wage. Then, by common agreement, none of them produces at a higher rate than that which gives him the maximum wage.

If the piece-rate system is to avoid this difficulty, it must be accompanied by a guaranty that there will be no change in the rate so long as methods, material, tools, and machines are not changed.

When the management has made changes which save time, however, a change in rate cannot be called a cut. For example, the introduction of high-speed tool steel enabled machine-tool operators to run their lathes two or three times as fast as before. Double the former output was then easily obtainable without any more exertion on the workman's part. Such a change in conditions justifies a decided change in piece rates.

Advantages of Piece Rates. The great advantage of the piece-rate system is that, once the workers are assured the rate will not be cut, it gives each worker a strong incentive to do as much as he is capable of. He becomes his own taskmaster. The U. S. Bureau of Labor estimates that, on the average, men on piece rates do 25 per cent more work in a day than men on the day-rate basis.

Since payment is made per unit produced, the direct labor cost per unit is known in advance, while the high output per day tends to make the indirect cost per unit low.

Disadvantages of Piece Rates. Piece rates tend to cause workers to be careless of the quality of work they turn out. A rigid inspection, with rejection of poor work as a penalty, is needed in many cases to keep up the quality of the product.

There is also some danger of excessive fatigue, if the workers set themselves tasks they are not fitted to perform. But the greatest disadvantage of the piece-rate system, especially where conditions are not standardized, is the tendency toward dissatisfaction and wrangling over rates. Where no definite standards have been established by time study, the setting of the rate must be based to a great extent on the time in which the job has been done in the past.

Let us assume that the management sets a fair rate based on past performance, and agrees that this rate will not be cut. A competitor, however, gets his men to turn out the same line of work at a lower labor cost. What is to be done? The company must keep its word with the men and still devise a way of meeting the competition.

One remedy for this situation is to revise methods and base the piece rate on standard time studies, as explained a little later on.

Contract Work. In certain industries, work of some kinds is done by competent workmen under a contract. They agree, for example, to process a certain number of pieces at a specified price. Under this arrangement each contractor employs his own men, while the company furnishes the material, building, equipment, and tools.

The contractor is inclined to requisition more material than he actually requires, in order to make sure that his men will not be delayed by lack of material. The con-

tractor is also inclined to be careless with the company's tools and machines; and usually rigid inspection must be provided. About the only situation in which the contract-work system is satisfactory is in some cases where organized labor will more readily work at a brisk pace when employed by a contractor who is himself a member of the organization.

It is clear, however, that fear of cutting the contract price will work here in just the same way as it does with the workman under the piece-rate system. The contractor will feel that if the management thinks he is making too much money, it will not give him the next contract at the same price. So he dares not turn out work at so rapid a rate as to yield an exceptional profit.

The Halsey Premium System. Before the use of accurate motion and time study as a basis for standard times was generally understood, various systems were used which sought to avoid the troubles of straight piece rates. These systems reduced the amounts paid for extra efforts, and, in a way, provided insurance for employers who feared to make a mistake in setting their piece rates too high.

Of these plans, the premium system proposed by F. A. Halsey has proved to be so satisfactory as to have gained wide use. In this system the workman receives his hourly rate for the time he puts in, and in addition he receives, as a premium, extra pay for every job he does in less than the standard time.

The time standard originally used by Mr. Halsey was an average of records of the times taken for doing a job by efficient men. More recently, however, the standard time is being based on scientific motion and time studies, which studies were fully explained in Executive Manual 35. The standard time is usually fixed by adding an allowance, up to as high as 60 per cent, for rest periods, to the working time which a skilled workman takes to do a job under standard conditions.

When this is done, the Halsey premium system may be considered in the same class as the wage plans of scientific management, which will be explained shortly.

The premium in the Halsey premium system is added pay for extra effort. It is a payment to the worker for a percentage (usually 50 per cent) of the time he saves compared with the standard time. For example, if a worker whose hourly rate is 50 cents completes a job whose standard time is ten hours in eight hours, he will be paid eight times 50 cents, or \$4, for the time he put in, and a premium of 50 cents (50 per cent of the two hours saved at 50 cents an hour), making a total of \$4.50 for his eight hours of work. Thus the saving in time is split between the management and the men on a fifty-fifty basis.

Such a split usually appeals to the men as being fair, and it is readily understood. This is one of the strong advantages of the plan.

Two of the essentials of an effective wage plan are—

- 1. That it be understood by the men.**
- 2. That both the men and the management consider it to be fair.**

In another way also, the psychology of the Halsey plan is excellent, since the premium is based on "saving time," rather than on speeding up the output. The workman naturally likes to save time when he is paid for it, and the saving of time is a demonstration of his ability. While the results are much the same, this time-saving appeal is quite different from the "speed up" appeal of the ordinary piece-rate system.

There is little fear that rates will be cut when time is saved under this plan, since the management shares in any improvements the men effect. The men, therefore, are inclined to do their best. Furthermore, the guaranty of day rates is reassuring to the new men on the job.

But the Halsey premium plan is not without disadvantages. The guaranteed day rate may protect slack-

ers, and workmen can "beat the game" by speeding on one job to earn a substantial premium and "resting up" on the next job at day rates.

The details of computation of pay on this Halsey plan are shown in the appendix at the close of this manual.

THE MODERN WAGE PLANS OF SCIENTIFIC MANAGEMENT

We come now to a group of wage plans which are the result of the research of scientific management. In the wage plans thus far covered, the rate of pay is based on the records of past performance, and management co-operates only mildly in making better records possible.

Scientific management, as we have seen in previous manuals, places on management the responsibility for making conditions as nearly perfect as possible and for setting up standards of performance. With standard times scientifically established, the management can safely guarantee that the time fixed for a job will not be changed unless the tools, the process, or the material is changed, for it knows that competitors who make time studies will get practically the same standard times for similar work on similar machines.

Scientific management knows where it stands in setting the rates. Its greatest difficulty is to convince the men that they can do the work in the standard time after they have learned how to follow the standard instructions.

All the wage plans in this group recognize this difficulty, and all but one—the Taylor differential piece-rate plan—provide definitely for a day rate while learning the standard methods.

For all these plans the working conditions must be thoroly standardized before the plan is introduced, and competent instructors must be provided. Usually the new system is introduced gradually. Also, it is generally agreed that—

When planning more scientific methods of management, it is always desirable to leave the wage question to the last.

This does not mean that the wage problem is to be feared or avoided, but rather that all other conditions must be right before it can be satisfactorily handled.

The more widely known systems have been worked out to meet somewhat varying conditions, and they use different methods of computing the rewards, as illustrated in the appendix. But they all have in common—

1. A definite standard of performance.
2. A substantial reward or bonus for the workers who attain this standard.

All wage systems under scientific management are based on the principle that—

The cost of production per unit is so greatly lowered by a reduction in machine time and other fixed charges that it pays to reward the worker well for doing his part in reducing these costs.

Let us now get acquainted with the essential features of the more widely known wage systems that have been developed by scientific management.

The Differential Piece-Rate System. The differential piece-rate plan has two rates:

1. The ordinary piece rate which is paid for a below-standard rate of work.
2. A higher rate which is paid on each piece turned out if the worker equals or exceeds the standard rate of work for the day.

For example, time study may have shown that a certain job can be done in 30 minutes. An allowance for rest periods and lost time is necessary and the standard time is set at 48 minutes. An eight-hour day has 480 minutes, so that ten such jobs can be completed during one day in standard time.

If the worker does, say, nine pieces in a day, he will receive nine times the ordinary rate of, say, 50 cents a

piece, or \$4.50 for the day. But if he completes ten pieces, he will receive ten times the higher rate of, say, 60 cents, or \$6 for the eight-hour day—an increase of \$1.50. Thus there is a substantial reward to the worker for turning out the standard quantity every day. Furthermore, there is no tendency to “soldier” on the job in order to prevent rate cuts, particularly so if the worker understands that the standard time has been fairly fixed by scientific measurements.

Such are the essential features of the differential piece-rate system, first developed and applied by F. W. Taylor.

Emerson's Efficiency System. In the Emerson system also, a standard time is established for each job.

For each pay period, such as a week or a month, a record is kept of the number of hours a man worked on the jobs for which time standards have been established. Then the total hours in which he did these standard-time jobs are divided into the total of the standard times. For example, if the sum of the standard times in a given pay period aggregates 210 hours, and the man took 240 hours on these jobs, his efficiency would be 210 divided by 240, or 87.5 per cent.

Mr. Harrington Emerson then devised a scale of rapidly increasing percentages to add to the regular rate of pay per hour, to compensate a man in accordance with his efficiency, beginning with 66 per cent efficiency.

It is apparent that sustained efficiency is a central aim of this plan, since the workman's performance for the entire pay period is averaged together in determining his efficiency.

The Gantt Bonus System. In the Gantt system as originally devised by H. L. Gantt, the workman is paid an hourly rate no matter how long he takes to do his work. Time standards, however, are established for every job, and if the workman does *all* his work during a given day

within the time standards established, he receives a fixed daily bonus in addition to the day rate. In this system the foreman is also paid a bonus each day for each man who earns a bonus.

Thus the Gantt system rewards the worker for reaching standard times on *all* jobs in a given day. In case he "falls down" on any one job during the day, there is no incentive during the rest of that day to do the other jobs rapidly, since he knows he has lost his bonus for the day.

Bonus System on Individual Jobs. A modification of the original Gantt system above explained is the bonus on individual jobs, wherein the workman is paid an hourly rate and in addition is given a bonus *on each job* done within the standard time. This bonus is worked out as a percentage of the wages or as a definite sum of money.

A further development of this system is that of paying the foreman a differential bonus varying with the number of men in his department who "make the grade." For instance, if he had ten men under him, he might get 10 cents per man bonus. If nine of his men made their bonus on one day, the foreman would get 90 cents of additional pay for that day. If, however, all of his men made their bonus, he might receive 15 cents per man, or \$1.50 additional, as a special reward for securing high efficiency from every workman.

The Group Bonus Plan. In mass production where a uniform flow of work is the important result wanted, as in a large automobile plant, a group bonus plan has been found effective on some classes of work.

Under this plan the standard times of various operations performed by a group of workers are combined to get a group standard time. Each day the work tickets of each employe in the group are charged against the group of parts worked on. If the standard time of this group of jobs is 1,200 hours, and the actual hours on all

the work cards of this group of workers total 1,000, then the efficiency of the group is 120 per cent, and each employe is given a percentage of increase over his hourly pay for the work he did on the group job, based on a scale similar to the Emerson scale previously mentioned.

A plant in which such a plan has been in operation for several years shows an average increase in the total production of about 30 per cent per worker above the output per man before the group bonus plan was installed. One of the noteworthy results of the plan has been the elimination of antagonism toward speedy workers. Instead of antagonism toward speedy workers, based on the feeling that they were decreasing the demand for labor, the rapid workers are now regarded with favor, because their work tends to increase the earnings of the entire group.

The Diemer Combined Bonus and Premium System. There have been various modifications and combinations of these systems, one of the more widely known of which is Hugo Diemer's combined bonus and premium system. In this plan a bonus is paid for meeting the standard time; a premium is paid for cutting under the standard time, as in the Halsey plan; and a general record of efficiency serves as a basis for increasing the hourly base rate. The details of this plan are also explained in the appendix at the end of this manual.

Which Wage System to Use. All the wage systems above outlined are in successful use.

Which system is best for any given plant?

To find the correct answer to this question requires a thoro study not only of the industry but also of the local conditions. What competitors are doing, what other industries in the vicinity are doing, what the attitude of the working force is, what position the stockholders and directors of the plant will take, and many other factors must all be carefully considered.

In general, however, the fields of use for the various systems are as follows:

Where standardization has not been developed very far, time work, with efficiency records, is likely to be found adequate.

Where standardization is under way, but has not yet been well developed, the premium system usually proves satisfactory.

Where standardization is well under way, one of the more scientific wage plans may be adopted.

The best type of wage system will depend not only on the extent of standardization but also on whether the workmen in general are of a relatively high or low grade of intelligence, and whether or not there are strict union regulations in regard to wages.

A number of writers suggest that in introducing a wage system, the Halsey premium system is a valuable transitional plan to use where time studies have not been introduced.

No matter what the system or procedure, it must not be overlooked that—

When an iron-clad guaranty is given that a rate once established will not be cut, this guaranty must then be faithfully lived up to.

If a country, as a whole, is to maintain its industrial standing in the face of foreign competition for sales in both domestic and foreign markets, it must conserve its labor energy and at the same time secure the highest efficiency in its labor. Among all the incentives to efficiency on the part of labor a high place must be given to the important matter of having the right wage plan—the one that, under conditions as they are, will most effectively stimulate loyalty and efficiency on the part of the workers. Such a plan will fairly reward the loyal and efficient workers, and will penalize the disloyal and the inefficient.

Those are prime objectives of the modern scientific wage plans explained in preceding pages—to reward good work and to penalize poor work. The justice of wage plans that attain these objectives is evident. In attaining them, management applies effective control thru wages.

WAGE PLANS AND PRODUCTION REPORTS

Part II

PRODUCTION REPORTS AND MASTER SCHEDULES

OUR understanding of the principles and problems of production as presented in preceding manuals has prepared us for keen appreciation of the responsibilities of the works manager, who is the chief executive in the production end of a manufacturing business.

In this final part of our intensive study of production problems, we shall analyze the functions of the works manager. We shall find out how he supervises, directs, and keeps in touch with all important activities in his department, and how he helps to co-ordinate the work of production with sales work, financing, and the general administration of the business.

The Functions of the Works Manager. The title "works manager" is not universally used to designate the head of production. In some cases, the president of the company acts as general manager and the executive who bears the title "general manager" is in fact responsible for production alone—is the works manager. In other cases, the works manager is known as the general superintendent, the factory or plant manager, and the like. Whatever he may be called, whether "works manager" or by some other title, his is the actual responsibility for efficient production.

The organization charts of Executive Manual 34 served to show over what departments the works manager is usually considered the head. It is well, however, to have all his functions clearly defined, since these will vary somewhat in almost every organization.

The president of one manufacturing company looked upon this matter of having well-defined functions as being so necessary that he asked each official to outline his responsibilities. After a conference in which all overlapping duties were adjusted and omitted duties were added, each of the executives was given a complete set of sheets setting forth the functional responsibilities of all executives in the business. The handling of all questions which came up was thus standardized.

The sheet showing the functions of the works manager is shown as Figure 3. It will serve to give a clear picture of what one works manager in a representative plant is considered responsible for.

The works manager must evidently be, in every sense, an executive. He must not only direct all the men under him but he must also aid them as they plan their work. He must co-ordinate the work of the many departments that report to him, and decide many of the problems where more than one department is involved.

He also must bring his intimate knowledge of the production situation to the councils of the company, and must aid in reaching sound decisions on matters of general company policy.

Finally, he must carry out these policies in his departments. He must announce them to those who are affected and define and explain them. He must aid his associates to make their plans conform to these policies and must check up on the way in which they are being carried out.

The Works Manager in Action. To gain a clearer idea of the duties of a works manager, let us observe this executive in action as he takes part in a meeting of the manufacturing committee of the Wayland Chair Company, at which meeting a manufacturing program for the coming season is being planned. Let us also see what reports the works manager requires of his depart-

WORKS MANAGER

The works manager will be directly responsible to the general manager. He will have direct supervision over the production, employment, and factory departments, and will act in the closest co-operation with the sales, designing, purchasing, and accounting departments, both directly and thru the general manager.

Functions: The works manager will be responsible for the proper maintenance of all production schedules, in accordance with the orders going thru the factory departments from the planning department.

He will have general charge of the discipline in all departments under his jurisdiction, and will be responsible for the employment of all department heads, as well as the workmen required.

He will be responsible for all plant engineering and maintenance work, and will report directly to the general manager on all matters pertaining to new buildings for manufacturing, and to new equipment, estimates, designs, experiments, etc.

He will approve all purchase requisitions for material and supplies required for the maintenance of buildings and equipment, not to exceed \$1,000. Expenditures in excess of this amount will be approved by the general manager before the purchase requisition is sent to the purchasing department.

He will be responsible for all maintenance and repair work thruout the plant, and will make all arrangements as to material and necessary labor to maintain the plant in first-class condition at all times.

He will have plant orders issued for all tool making, millwrighting, carpentry, etc., which orders will state what work is to be done, and where and when it is to be done. Such plant orders will show the account number to which the work is to be charged, and must bear his approval before work is started. Plant orders involving an expenditure in excess of \$1,000 are to be approved also by the general manager.

In general, it will be the duty of the works manager as far as possible to relieve the foremen of the manufacturing departments of all maintenance work, in order that they may devote their entire time to the supervision of manufacturing.

The planning department acting under direct supervision of the works manager will be responsible for all clerical work in connection with production orders.

The works manager, with the department heads and foremen under him, will be responsible for the quality and quantity of production and for the efficient operation of the plant.

Figure 3. An outline of the functions of the works manager in a manufacturing plant of moderate size.

ment heads, and learn how these and other reports are used in arriving at a master schedule of production. We shall also see how plans and essential facts about production are presented to the board of directors for their suggestions and approval; for—

A company's officials act under authority which has been given them by the board of directors, and the latter expect and should receive accurate and sufficiently detailed reports to enable them to control the policies of their company.

The Reports the Works Manager Receives. In preparing himself for the meeting of the manufacturing committee, the works manager of the Wayland Chair Company has studied carefully the reports he has received from the departments under him.

There is a report from his planning department showing the status of work in the shop at the present time, including special reference to departments which are, or are likely to be, rushed with work. Suggestions regarding new equipment come with and out of this report.

The employment department has furnished a report analyzing the labor situation in each department, suggesting certain changes in personnel matters, and concluding with a forecast of the labor situation for the six months ahead.

The stores clerk has supplied a summarized statement of the stocks of materials on hand, of goods in process, and of finished goods. In addition this statement analyzes all cases where production has been delayed by lack of materials.

The foreman in charge of plant maintenance has handed in reports on the work his men have done, and has called attention to abuse of machines and equipment here and there thruout the plant.

Some of the shop committees have also handed in reports which the works manager has carefully consid-

ered. The safety committee has called his attention to the fact that an automatic sprinkler system is needed in a new warehouse to cut down the fire hazard and to give the company a low fire-insurance rate on that building.

The suggestion committee recommends the adoption of a plan which an assistant foreman has worked out by which a rearrangement of machines will, it believes, improve the travel of work. To this suggestion is attached an estimate of the cost of the change.

The new-equipment committee has handed in suggestions from various sources regarding the needs for new equipment, and its report has received much study.

The Value of Reports. All those reports are of great value because the men who make them have been taught how to prepare useful reports. All the executives in the business have learned to appreciate the principle that—

A well-prepared report covering certain work or responsibility gives a bird's-eye view of its condition and activities, and a summary and analysis of the factors which are affecting the situation, with definite recommendations for improvements.

The following list shows some of the advantages gained by having written reports prepared with the foregoing principle in mind.

THE VALUE OF GOOD REPORTS

1. A condensed summary of a situation is more readily grasped because confusing details are taken away. The situation is then seen in better perspective.
2. A written report discourages inaccuracy and tends to eliminate guesswork.
3. Written reports can be filed. This makes possible accurate comparisons between one period and another.
4. The preparation of a report implies that someone will be held responsible for the situation it portrays.
5. The fact that reports are a permanent record of performance and serve as a basis of comparison is an incentive which tends to hold the standard of performance high.

6. Reports are to an extent a substitute for personal supervision, and aid an executive in controlling distant work.
7. Reports present a situation concretely, and thus aid in definite planning and budgeting.
8. The preparation as well as the study of a report is a stimulus to suggestions regarding improvements.

Additional Reports. In addition to the reports above mentioned, the works manager has also studied copies of the recommendations which the purchasing agent is making regarding the purchase of substantial stocks of lumber on what he considers to be a rising market.

The sales manager has also sent the works manager an advance copy of his report on probable future sales, and his recommendations regarding a design to add to the line.

Finally, tho not least in importance, the brief and very meaty report from the cost-accounting department gives a bird's-eye view of what each department has accomplished as to costs, and a comparison with past records. It shows, for example, the cash cost of the congestion of work in the departments, of which the planning department has complained, where overtime work had been necessary in many cases.

Among many other interesting reports, the works manager has studied with especial care the report of machine idle time, which shows him what equipment is not being used and gives him information which he will use in discussing the sales program for the coming season. He will suggest that if sales on certain lines can be pushed, a better balance in production will result, with corresponding lower costs.

Arranging the Manufacturing Program. Some lines of business, such as baking, the manufacturing of toilet preparations, etc., do not have to contend with serious seasonal fluctuations in sales and production. Their manufacturing program will depend largely on the out-

look for business conditions in general. Most lines of business, however, face to a greater or less extent seasonal changes in demand.

In the furniture industry there are two main buying seasons—in January and in July—when buyers come to the markets to stock up. Of course, furniture is sold all the year round, but at these two times of the year there is a sufficient increase in demand to justify arranging the manufacturing program for especially heavy shipments of the finished products following each of the two heavy buying seasons.

At this time, the manufacturing committee of the Wayland Chair Company is meeting in early May to decide on a master schedule and manufacturing program for the summer and fall season. The works manager, the sales manager, the purchasing agent, the treasurer, and the general manager are gathered round the conference table. Each has brought with him such departmental reports and statements as he believes may be helpful.

In some companies, the sales department must sell whatever the management decides to make, but in many companies, as in this, sales depend so much on what the public demands that this demand, to a great extent, determines what the manufacturing program must be. The sales manager, who has carefully determined the trend of change in the kinds of chairs favored by the buying public, is therefore given the floor first.

The Sales Manager's Report. This company makes several lines of chairs which it sells to the furniture trade for use in homes, and also to restaurant-supply houses, school-supply houses, etc., and in some cases to large individual buyers. The sales manager reports that his men in nearly every section of the country report a slight but noticeable gain in business activity, and that this is especially true of the school-supply business, since many schools are being constructed and will need chairs.

On the other hand, during several past seasons the dearth of orders for lawn and porch chairs, and some falling off in the demand for standard living-room and dining-room chairs, suggests that the influence of the automobile is still strong in holding down consumer demand for chairs to be used in the home. Many consumers are buying automobiles and for that reason cannot afford to buy chairs.

His suggestion, therefore, is that the company make a drive on tablet chairs and other school chairs, and that they manufacture less of the more expensive chairs for the home.

The Works Manager Co-operates. The works manager asks what models the sales manager has in mind to push as leaders. When the sales manager has indicated his choice, the works manager substantiates it by citing the rapid increase in orders for these models.

He then states that the factory has reached its capacity for making certain parts for these models, and that he had come to the conference prepared to ask that pressure be put on other items in the line. The report of the sales manager, however, has shown him that they must prepare for additional business in these models, and he asks that the purchase of certain equipment recommended by the planning department and the new-equipment committee be authorized. This will enable the shop to take care of a 10 per cent increase in orders in these lines without congestion.

He further recommends that the sales department run as leaders for the school trade two models in the making of which other equipment can be used, equipment which is not working at present since the season's run on lawn chairs is already over. This plan, he explains, has the further advantage that certain workmen who are expert in making this line will be much better satisfied if they can work on these models rather than on operations which do not pay them so well.

The Purchasing Agent and the Treasurer Speak. The purchasing agent is consulted regarding the probable cost of material for the models suggested. All finally unite in deciding that the suggestion of the works manager is good, and that these models should be made leaders for the school-supply trade.

The treasurer, a new man who is not yet acquainted with shop problems, has thus far taken no active part in the discussion. He now suggests that, in view of the small demand for chairs for home use anticipated by the sales manager, and in view of the comparative profits shown on the school line and the home line, the latter should be abandoned for this year.

This brings a protest from the sales manager. He states that if his men do not call on the furniture trade regularly, and if the line is not displayed at the furniture expositions, they will lose many valuable customers from whom they expect to receive much profitable business in future years. To ignore the line for one year would result in a serious loss of prestige for the company.

The treasurer is apparently but half convinced, and says something to the effect that "a profit in hand is worth two in the future."

The general manager then asks the works manager what he thinks of the treasurer's suggestion. The works manager consults his cost reports and then points out to the treasurer that the move he suggested would reduce rather than increase profits, even for the present year. He gives figures which show the fixed charges that are being distributed as burden on the home-furniture line and points out that if the line were discontinued, many of these charges would still have to be paid.

He then points out what appears to him to be another important reason for continuing this line. The upholsterers, the hand carvers, and other classes of skilled workmen have been with the company for years. These

men cannot readily adapt themselves to the machine operations required by the line of school furniture. To discontinue the home line would therefore throw these men out of work—a rather serious predicament for them—and this would in all probability cause a setback in the company's efforts to build up morale and *esprit de corps* among the workers.

The treasurer admits the force of these arguments.

Thus the discussion goes thru the entire line. It is decided to add certain new designs and to discontinue certain others. On all the important questions that come up, the works manager points out the shop considerations. He has exact knowledge of shop conditions, and his associates agree to adjust the program so that one department may be shut down for a few weeks for overhauling; they agree to raise prices on certain goods slightly to permit more wages for a class of workers who are better paid by competitors; they agree to push the sale of certain goods for which the shop has an excessive supply of raw material; etc.

On the other hand, the works manager agrees to work certain departments double-shift for a few weeks to get out a large contract which the sales manager believes to be a wedge for much profitable future business.

The Financial Budget. When the general program of manufacture has been thoroly discussed and settled, the treasurer asks the works manager, the purchasing agent, and the sales manager each to give him a budget of the amounts that will have to be paid out each month to carry out the schedule.

The works manager is able to estimate very exactly what the required pay roll will be for each pay period, and to advise the purchasing agent what supplies and raw material will be needed in each month. The latter then estimates what these will cost and in what month payment for the different items will fall due. The sales

manager also estimates closely what his budget of salaries, commissions, and expenses will be for each of the six months included in this budget.

With these figures in hand, the general manager has a chart plotted such as you see in Figure 4, which shows the monthly cash required to operate the manufacturing and sales departments.

To this the treasurer adds data regarding the office expense and the cash required to pay interest, taxes, and the like, and thus figures out as accurately as possible the total cash required each month. He then estimates the total cash that may be expected from collections each month and from all other sources, and draws a curve to represent this. In this way the probable cash outgo and income are closely estimated and the treasurer is able to tell when and how much working capital will have to be borrowed.

The details and principles of preparing budgets are fully described in later manuals of this course, particularly in Executive Manual 75.

A few adjustments are made in the program to make it better fit both the purchasing agent's forecast regarding price changes on materials and supplies to be purchased and the treasurer's statement regarding the cash situation.

The general manager then approves the master schedule and budget, and arranges to present them to the board of directors.

This latter step—getting the approval of the board of directors on the master production schedule and the budget—is not always necessary. In some corporations, the president, acting with the treasurer and the general manager, has final power of approval on such matters. In many cases, however, the board prefers to keep in close touch with the plans of the business and all such important matters are referred to it for final approval.

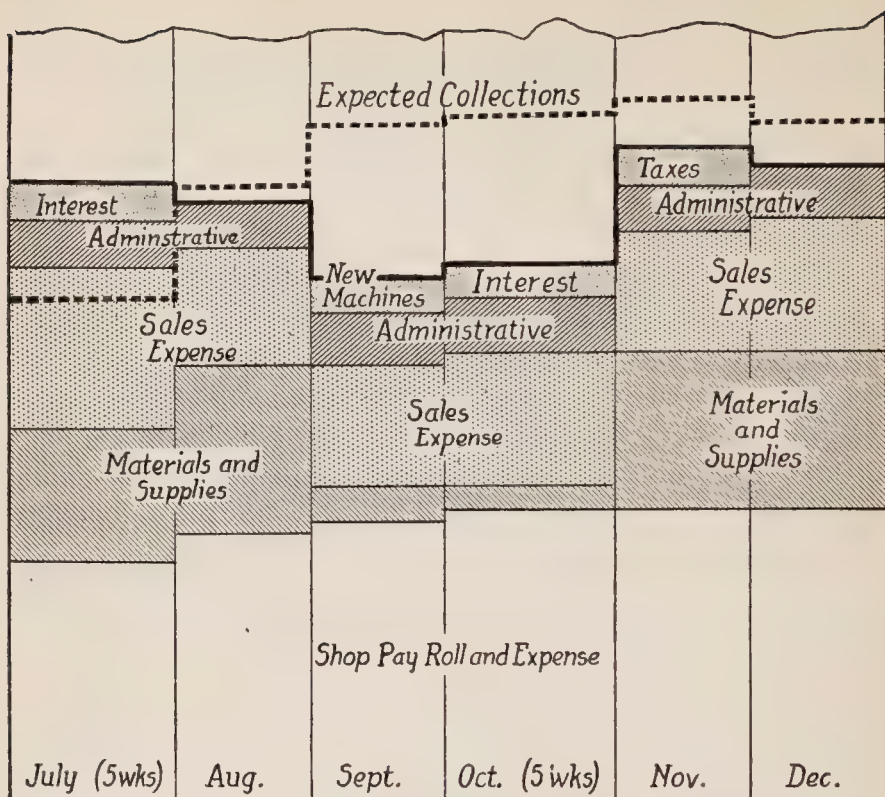


Figure 4. Chart showing the budget of costs and expenses to be paid each month, as compared with the expected collections for the month. The months are considered as either four or five full weeks, and the curve really shows the average income and outgo per week for each month. By using this plan the areas represent dollars. The area between the heavy solid line and the dotted line shows exactly the amount the income exceeds the outgo or vice versa.

The Reports to the Management. The works manager gives monthly reports to the general manager which summarize in brief and nontechnical form the reports which the production departments and committees have prepared.

Reports to the management should give facts which measure the results obtained in each department so that the effectiveness with which the plans of management are being carried out may be accurately gauged.

Thru a study of these reports the works manager and the general manager will be able to locate any weak spots

that need their attention, and to detect work of fine quality which deserves praise and promotion.

The reports that the general manager receives are, in turn, summarized in even more brief and even less technical form in the report and recommendation for future plans which he gives to the board of directors. In the case which we are studying, the proposed manufacturing program or schedule and the financial budget required are part of the general manager's recommendations to the board of directors.

Scheduling the Program. Once the board of directors has adopted the program, the shop planning department begins to work out detail production schedules.

The program authorizes the manufacture of a large number of stock models and styles of chairs during the coming six-month period. It also authorizes the manufacture of many other lines for which parts must be prepared, material purchased, etc. The planning department schedules this work thru the shop so that a supply of all needed items will constantly be ready for shipment on the probable delivery dates of the expected orders.

As many orders for nonstandard furniture come in from time to time, the planning department must dovetail the work on these special orders with the work on stock orders.

Maintaining the Plant. A study of the production program may show that certain departments will be overcrowded unless some equipment is added. This must be ordered and installed. In other departments, worn machines must be thoroly overhauled. The planning department must consider this in scheduling the work, and must, in fact, schedule the work of the maintenance force so that the men who specialize on repairs will not be needed in two places at one time.

The works manager will keep in very close touch with the maintenance of his plant, since little is so disastrous

to a carefully planned schedule as a breakdown of some machine which is being crowded to capacity to keep up with the normal flow of work. He will follow the principle that—

In the maintenance of a plant, "a stitch in time saves nine," and it saves much expensive idle time.

The Emergency Test of Works Management. Yet, with all the precautions possible, unexpected breakdowns sometimes occur, or the receipt of needed material is delayed, or the power supply may fail, or labor trouble may come, or one or more of a hundred unexpected difficulties may arise. Often trouble comes "in bunches."

What then?

The answer, if the difficulty is serious, is usually up to the works manager. If he lacks courage, lacks ability to think under pressure, lacks a broad and sympathetic understanding of the situation, he will fumble and hesitate and probably fail to handle the problem. Probably some better man will have to take hold and straighten things out.

But if he is prepared; if he has foreseen that just such a serious difficulty may arise and has planned, in advance, how it can be handled; if he has schooled himself to meet difficulties bravely and without hesitation; if he bases his decisions on a thoro knowledge of production principles, then he will in all probability banish the trouble without serious loss.

Emergencies, of course, arise in all phases of business, yet most of them cast their shadows before. In production work, however, emergencies of one kind or another come so frequently that they are almost part of the day's work. Every executive will be called on to help in meeting some of them; and—

Every executive's ability to meet emergencies depends on his grip of the principles that underlie the successful handling of his responsibilities.

Every executive must understand the principles that underlie the successful handling of problems in all departments of his business, for an important phase of the responsibilities of every executive is, as explained early in this training service, the giving and getting of co-operation to and from departments.

In particular must every executive understand the methods, requirements, and principles of efficient financing, for every activity in every department of a business bears a close relation to the problem of financing the business. Executive Manuals 41 to 48, inclusive, will take up all the important practical methods and principles applied in successfully financing a business.

Executive Problem 40, which follows, will supply important additional preparation for securing a full measure of training from the following section on financing a business, because it deals, in part, with that phase of business which in many organizations makes the heaviest financial demands—the financing of the manufacturing program.

The following check-up on principles covers most of the important principles of production that have been presented in Executive Manuals 33 to 40. It affords a good general review of those manuals. This check-up and Executive Problem 40 will test and further develop your ability to apply sound principles of production.

CHECK-UP ON PRINCIPLES

Use the following check-up to get the principles of production presented in Executive Manuals 33 to 40 firmly fixed in mind. This will help you to handle the problem which follows. This check-up is entirely for your own personal use, so you need not send it in to the University.

	Check	
	Yes	No
1. Henry Ford in 1921 was dissatisfied with the cost of making Fords. He gave many of the squad bosses active production work, increased the tasks of other workers, etc., but left the minimum wage of \$6 a day unchanged. As a result, he made 4,500 cars daily with 45,000 men, where previously he had been making 4,000 cars with 60,000 men. Is it probable that he could have accomplished an equal saving in cost per car by cutting the wage scale?		
2. The A Company makes very high-grade furniture, much of which is hand carved and inlaid in accordance with individual designs for special uses. Naturally, this work goes thru the shop in small lots. The shop has very modern equipment, and the work is excellently scheduled. The workmen are experts and loyal to their company's interest. They are being paid on a day-rate basis. Would it pay to change to some more "modern" basis?		
3. The assembly department of an automatic device manufacturer employs many women of limited education. They are paid on the Emerson efficiency plan. They receive a standard wage weekly and once a month an extra compensation based on their efficiency. They do not understand how this basis is computed, except that the better workers get more bonus. They suspect that the foreman's "favorites" get more than the rest. Is this wage plan being used as effectively as it might be as a control to effect low-cost production?		
4. Does it conform with the principles of scientific management to form opinions on a business question—or any other kind—before you have completed your investigation of it?		
5. Do you ever find yourself forming opinions regarding the problems in this course of training before you have read them completely?		

	Check	
	Yes	No
6. A foundry had certain work which was not too heavy for strong women workers. When it needed more women workers, it gave a tryout to all who applied. Is this fair to the applicants?		
7. These women workers were paid on the differential piece-rate basis with a 50 per cent difference between low and high rates. The workers would work under high tension until the standard time quota for the day was reached, and would sometimes become hysterical when they failed to reach it. Does such a big premium for standard rate performance seem wise in this case?		
8. A manufacturing company foresees a rapid increase in demand for its product. So far as can be foreseen, the product will require no change either in design or in the method of manufacture. Under these conditions, is the company justified in putting up a building specially designed for the present product, planning to put up similar units in the future as the demand increases?		
9. Recall what you have studied regarding the great effectiveness of the various controls in industry. With this in mind, are you ready to admit the truth of the principle that "the most effective control of men is based on inspiring leadership"?		
10. Business was dull, and orders hard to get. Labor was plentiful. The M Company found it had to cut production costs or go out of business. The molders were asked to take a 20 per cent cut in wages or go on piece rates. A hot-headed leader of the group induced them to vote a strike. The better men of the group were then interviewed, one at a time, by the shop superintendent. They were shown how the piece rates were to be established, and improved methods were suggested which would enable them to earn as much as before. Nothing was said about the strike, but a month's leave of absence without loss of pension or seniority privileges was offered.		
The strike vote was rescinded.		
Do you recognize the principles of economics, of psychology, and of successful control of men (thru wage plans and otherwise) which this superintendent applied in meeting this emergency?		

In the B Company, all orders are entered by one department, packed by another, shipped by another, etc. In both organizations, all departments or units are independent of all others, and the department chiefs are responsible for all features of work in these departments.

A Company	Line ☐	Line and staff ☐	Functional ☐
B Company	Line ☐	Line and staff ☐	Functional ☐

12. How many of the 7 M's require consideration by the men holding the following positions?

[illegible]

Check	
Yes	No

Would you call this a complete, well-prepared report?

Executive Problem 40

"WILL IT PAY TO TAKE THIS ORDER?"

Showing How Production and Financial Considerations
Enter into Sales Problems

UNDER THE LASALLE PROBLEM METHOD



"AN ALL-ROUND business man!" That high praise is well deserved by the executive who can decide wisely such a practical everyday problem as is described in the pages that follow. A specialist in production alone can't solve it, nor a sales specialist, nor a financier. It takes all-round, well-balanced knowledge and well-balanced judgment.



Prepared by the Research and Consultation
Staff of LaSalle Extension University from an
interesting problem which it has carefully in-
vestigated and analyzed.

Executive Problem 40

"WILL IT PAY TO TAKE THIS ORDER?"

A special meeting of the Chapin Printing Company executives is being held in Mr. Chapin's home. The occasion is a telegram received by Mr. Chapin that afternoon from Mr. MacLasky, the vice president and sales manager, reading, "Call meeting this evening to decide Coldmore contract."

Mr. Chapin, the president, has asked Mr. Haskins, the manager, and Mr. West, who acts as treasurer, credit man, and chief clerk, to meet at his home immediately after supper. You are present also in your official capacity as assistant to the president.

The object of this meeting is to decide whether or not to accept a printing contract with the Coldmore Refrigerating Company. Mr. MacLasky has spent two days in Metropolis, 100 miles away, and has evidently secured an offer of the business. Evidently, also, certain details must still be thrashed out before the contract can be signed.

The Chapin Printing Company is located in Riverton, a town of some 15,000 population, and is the only large printing company there. It has made a specialty of high-grade advertising work such as booklets, folders, small catalogs, and the like. Its work is done largely for Metropolis firms.

The Chapin Organization. Mr. Chapin started out as an advertising man. He is the principal owner of the company, and was until recently the business-getter of the organization. He is no longer taking a very active part, however, leaving most of the details of administration to you.

Mr. Haskins, the manager, is a real expert in all phases of printing work. He is in full charge of production. Mr. MacLasky is now doing the selling. He is well

acquainted with the printing game and with the needs of the company's customers. He has been able to bring in a very satisfactory volume of business and to keep the plant fairly busy.

Mr. Chapin had selected Riverton as the home for his printing business, because of the favorable living and working conditions he found there. Homes could be rented or purchased for half of what they cost in the large cities. All the living expenses were low. He knew that under these conditions he could build up a force of contented workmen at a wage scale which would appear low compared with city prices, but which nevertheless gave his men more real comforts than printers of equal skill would enjoy in the city, even tho their wages were materially higher.

The net result was that the Chapin Printing Company could quote prices much lower than those of most companies which were doing work of the same grade.

The Proffered Contract. The Coldmore Refrigerator Company is a very large manufacturer and distributor of electric refrigerating equipment for home use. Its purchasing agent has heard much favorable comment on the work which the Chapin Printing Company does, and recently asked for its figures on a large printing contract.

The sales promotion department of the Coldmore Company has planned an unusually extensive campaign in which high-grade dealer helps of several types are required. This material will be needed at intervals thruout the year. The department therefore proposes to give some one company a contract for its entire printing requirements for the year. This is the situation on which Mr. MacLasky is to report.

"Well, we've got it!" is his first exultant greeting, and the others are not slow to congratulate him. He then starts to explain the contract. The work is to be done at prices which average favorably with the price the company has received for equivalent work. These details had, in fact, been discussed in advance between Mr. Haskins and Mr. MacLasky. It transpires, however, that some unexpected features are to be included in the contract.

Favorable and Unfavorable Features. For one thing, the Chapin Printing Company must agree to handle all the work in its own plant. The Coldmore purchasing agent has had trouble with contracts on which part of the work was "farmed out," and insists on this. Up to this time the Chapin people have done comparatively little color work. Their presses are not specially adapted for it. Mr. MacLasky suggests, however, that the company has been planning to buy a new press soon, and can well afford to buy

a two-color press which will enable the company to do all the color work in this contract "as well as anybody in the land." This two-color press will be good equipment to have anyway. Mr. Haskins assents to this.

The great value of one feature of the Coldmore contract appeals to all. The requirements will be known long in advance. The work can therefore be definitely scheduled, and, in fact, can be done at times which will permit efficient scheduling of all the company's other work.

There will be long runs on the Coldmore contract. This means comparatively little composition, stone work, and make-ready. The prices quoted took this into consideration, however, so that the Chapin Company will not gain much and may, in fact, lose something under this arrangement, since it is likely to mean an unabsorbed idle-time expense for the composing stones and similar equipment. This item will be small, however.

In general, the well-balanced production and the full-time operation of the presses make this contract an unusually attractive one. With his best efforts, Mr. Haskins has thus far been unable to reduce the average idle time of his equipment below 30 per cent. He believes it will be less than 15 per cent if the company takes the Coldmore contract.

Mr. West reports that he has looked up the credit standing of the Coldmore people and finds that the account is considered perfectly safe, and that they are good pay. The terms embodied in the contract are that work is to be billed and paid for on the first of each month after it is completed.

Another unexpected feature is that the Coldmore people propose to supply their own paper. They ask the Chapin Company to store it. The discussion brings out that the storage feature may prove rather expensive since the Chapin Company's storeroom is already crowded. Besides this, the Chapin Company will have to handle it without any compensation. The material burden on everything else which it purchases will, therefore, be greater unless some special arrangement is made for distributing these expenses of storage, etc.

The proffered contract has one more unexpected feature. A rather heavy penalty is included if work is not shipped on the specified dates. No doubt shipments can be made on these dates, but if there is any breakdown, it is certain that the requirement of prompt shipments to the Coldmore company will upset the schedules and deliveries to other customers.

How the Contract Will Affect Present Business. President Chapin at this point asks how many of their old customers they'll

have to drop. Mr. MacLasky had not contemplated dropping any, but Mr. Haskins soon convinces him that the Coldmore contract by itself would keep the plant busy at one-half its maximum capacity when operating with one shift. Practically all of the company's business is received from regular customers, most of whom they have been serving for years. About a third of these customers will have to be dropped if the Coldmore business is taken on.

An alternative would be to put on new men as a night shift. These men would have to be imported. Most of them would probably be "floaters." In fact, it would be unfair, Mr. Chapin points out, to ask family men to move to town since the Coldmore contract might not come to them next year.

While Mr. MacLasky is very confident that they will be able to keep this business, he has to admit that it is sound sense not to count on this.

The Wage Question. Mr. Haskins points out that the new men brought in to work as a night shift would expect much higher wages than the company is now paying. Good men would be inclined to hesitate about moving to a small city and would ask a premium over city prices. These temporary men would not place much value upon the employee-service benefits which the company offers, such as group insurance, pensions, etc. They would look only at the wages offered and would not come except at high rates. The work they would do would have a direct-labor cost, therefore, substantially higher than that of the work now being done in the shop. He questions whether or not it would be profitable to handle any of their present accounts at the old prices if many outside men were brought in and put on as a night shift.

Mr. Haskins points out that this would be unnecessary since they are not under contract with any of the present customers, and some of the old accounts can easily be dropped. This seems to him the most profitable course.

Mr. Chapin then brings up the question of the proposed two-color press, and asks if Mr. Haskins has any color-press men who are competent to run this press and turn out high-grade work such as the Coldmore people specify. It develops that none of the present force can do this and that experienced men will have to be brought to Riverton for the purpose. These men will, of course, expect high, city prices. Mr. Haskins anticipates no difficulty in getting these men, however, by offering them an attractive wage.

Mr. Chapin questions the effect this will have on all the other printers in the plant. They are now satisfied, because they are getting real wages that exceed the net earnings of men who are apparently better paid, but whose necessary living expenses are materially

higher. Bring men into the plant at a higher rate, however, and all the old employes will feel they have a right to demand an equivalent wage scale.

This feature also is thoroly discussed. Mr. Haskins has recently completed a study of the standard time required for most operations and is ready to introduce a wage plan based on the Emerson efficiency plan. The question is raised, however, whether or not the employment of a few high-priced outsiders at this time will be so unsettling as to delay introducing the more scientific wage plan.

It is evident that a decision cannot be reached this evening. Mr. Chapin suggests that they "sleep over it," and meet in his office next morning at 10 o'clock. Before the group breaks up, Mr. MacLasky points out the prestige value of the Coldmore contract. He feels that this contract will open the door to any other buyer of high-grade dealer-help printing. He asks that this sales feature receive fair consideration.

As the others leave, Mr. Chapin holds you back. You have said nothing all evening, but have listened intently, and he has noticed this. He asks now that you prepare a memorandum analyzing this situation and giving your conclusions, and that you have it on his desk next morning at 10 o'clock before the conference starts.

APPENDIX

COMPUTATION OF WAGES UNDER MODERN WAGE PLANS

Halsey Premium System. In this system, wages are figured by the following formula:

$\text{Wage} = (\text{time worked} + \text{a per cent of the time saved}) \times \text{hourly rate.}$

The per cent of the time saved for which the worker is paid is usually 50 per cent, but this is not the only rate used. In fact, Mr. Halsey recommends the use of lower premium rates, running down even to 20 per cent, for classes of work in which the workman does not have to exert himself or to exercise intelligence or skill in order to earn a premium.

The worker's earnings per hour and the labor cost per unit under the Halsey premium system are shown below for a case where the premium is one-third the time saved.

Time Allowed	Time Taken	Day Rate on Job at 60c an Hour	Premium 33⅓% of the Value of the Time Saved	Workman's Earnings Per Hour	Total Labor Cost of Job
10 hours	10 hours	\$6.00	0	.60	\$6.00
10 hours	9 hours	5.40	.20	.622	5.60
10 hours	8 hours	4.80	.40	.65	5.20
10 hours	7 hours	4.20	.60	.686	4.80
10 hours	6 hours	3.60	.80	.732	4.40
10 hours	5 hours	3.00	1.00	.80	4.00

Taylor Differential Piece-Rate System. This system can be effectively used only where the work and the working conditions have been thoroly standardized. It is based on a standard time for each operation which is the shortest time in which a first-class man who is well instructed in the operation can do it regularly. The purpose of the system is to insure as far as possible that work be done in the standard time. A liberal premium is paid those who succeed, but those who do not reach the standard receive a piece rate which nets them less than the ruling day rate for similar work.

The computation of wages is very simple. The low piece rate is used for below-standard workers. The high piece rate—from 20 per cent to 100 per cent more than the lower rate—is the reward to those who accomplish their tasks within standard time.

This would seem to make work done by the expert workers cost more than that done by slower men, but the opposite is true when the machine-time burden is taken into consideration.

The company can afford to offer the increased piece price, because the cost of operating a machine tool, including power, light, heat, rental for floor space, tools, oiling, repairs, etc., is often greater than the rate of the mechanic who is operating the machine. The day rate of a machine remains very nearly stationary no matter what its output. It therefore pays to drive machines to their capacity.

This last point may be illustrated mathematically. Let us assume that in the case cited in the manual the cost of operating the machine is 70 cents an hour. The formula for determining the direct-labor and machine cost per piece will be:

$$\frac{\text{Machine rate} \times \text{hours} + \text{piece rate} \times \text{number of pieces}}{\text{Number of pieces}} = \text{cost per piece}$$

If a poor workman turns out only eight pieces during an eight-hour day, the cost per piece will be:

$$\frac{(70 \times 8) + (50 \times 8)}{8} = \$1.20$$

If, on the other hand, a workman turns out eleven pieces, the cost per piece will be:

$$\frac{70 \times 8 + 60 \times 11}{11} = \$1.11$$

In the first case the workman earns \$4 a day, while the second workman with his higher piece rate earns \$6.60 a day. This illustration shows how both employer and employe may profit under a properly adjusted wage system of this kind.

Emerson Efficiency Wage Plan. This wage plan is built on an accurately established standard time, just as is the Taylor plan.

Under the Emerson plan, the men receive a standard rate per hour for all the time they put in. If they reach 90 per cent efficiency, their hourly rate is increased 10 per cent. Below 90 per cent the premium decreases as shown in the table below. All men who cannot after a reasonable time reach 80 per cent efficiency, however, are not considered satisfactory for the work they are doing.

Emerson Wage Plan Bonus Table.

Per Cent Efficiency	Bonus as Percentage of Wages
66.0	.01
68.0	.04
70.0	.20
72.0	.55
74.0	1.01
76.0	1.61
78.0	2.39
80.0	3.30
82.0	4.35
84.0	5.55
86.0	6.93
88.0	8.40
90.0	10.00

Above 90 per cent efficiency, the rate of premium is increased 1 per cent for each 1 per cent gain in efficiency; 110 per cent efficiency means a 30 per cent increase in hourly rate; 120 per cent efficiency, a 40 per cent increase, etc.

To illustrate the working of this plan, let us take the same operation as we studied under the Taylor plan, assuming the hourly rate to be 62½ cents, and the standard time 48 minutes, or 10 units per 8-hour day.

A does but 8 units in a day. His efficiency is therefore 80 per cent, and his hourly rate is increased by 3.3 per cent to 64.6 cents, or \$5.17 for the day. Adding this labor cost to \$5.60, the machine cost, and dividing by the number of pieces, 8, gives \$1.35 as the cost per piece.

B makes 10 pieces. His efficiency is 100 per cent, and his hourly rate becomes 75 cents, or \$6 for the day. Six dollars plus \$5.60, divided by 10, the number of pieces, gives \$1.16, as the cost per piece.

C makes 11 pieces. His efficiency is 110 per cent, and his hourly rate is increased 30 per cent to 81.25 cents, or \$6.50 for the day. At the same time the cost per piece becomes \$1.10.

Gantt Bonus Plan. This plan is fully described in the body of this manual. We will examine here how it works out in practice, taking the same general conditions as before, and assuming that a 20 per cent bonus is paid for reaching standard time.

A does 8 pieces in 8 hours, receiving 8×62.5 cents, or \$5. Each piece costs

$$\frac{\$5 + \$5.60}{8} = \$1.325$$

D does 9 pieces, but receives \$5 just as A did, since he is working on the day-rate basis. The cost per piece, however, becomes

$$\frac{\$5 + \$5.60}{9} = \$1.18$$

B does 10 pieces, thus earning the 20 per cent bonus and getting on to the piecework basis of \$.60 per piece and making \$6 for the day.

The cost per piece is

$$\frac{\$6 + \$5.60}{10} = \$1.16$$

C does 11 pieces, making \$6.60. The cost per piece is

$$\frac{\$6.60 + \$5.60}{11} = \$1.11$$

Diemer Plan. A man's earnings under this plan are the regular day wage, unless he accomplishes his work in standard time. Beyond that point, the following formula becomes effective:

Amount earned = time wages $\times$ $(1.20 + \frac{1}{2}$ savings above standard time).

A 20 per cent bonus is paid, therefore, for reaching standard time, and all savings above standard time are shared "50-50" with the men.

Expressed mathematically, this formula reads:

Amount earned =

wage rate per hour $\times$ $(1.2 \times \text{hours worked} + \frac{1}{2} \text{ time saved})$.

Taking the same example as in the previous cases, the results are exactly the same as in the Gantt plan with bonus at 20 per cent, until one gets higher than 100 per cent efficiency.

C, who in 8 hours does 11 pieces whose standard time is 48 minutes, under this plan gets—

$$62\frac{1}{2} \text{ cents} \times (1.2 \times 8 + \frac{1}{2} \times \frac{48}{60}) = \$6.25$$

and the total cost per piece becomes $\frac{\$6.25 + \$5.60}{11} = \$1.08$.

Wage Tables. In actual practice, wages under these wage plans are computed with the help of carefully arranged tables which very much simplify the work.

One of the disadvantages of the Emerson plan is that such tables are almost essential. The workmen cannot readily check up on the amounts they receive. This in some cases makes them distrustful of the fairness of the wages paid them.



